SEP 13 1920

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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 20 Cents

VOLUME 75, No. 11 | 535 North Dearborn Street, CHICAGO, ILL. | SEPTEMBER 11, 1920

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized on June 14, 1918.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 75, NO. 11 CHICAGO, ILLINOIS SEPTEMBER 11, 1920

DISPOSITION OF THE URETER IN SURGICAL CONDITIONS OF THE BLADDER

WHEN THE URETERAL ORIFICES ARE INVOLVED *

WILLIAM E. LOWER, M.D.

CLEVELAND

Undoubtedly the most difficult outstanding problem in genito-urinary surgery is the treatment of malignant tumors of the urinary bladder. As in all other cancerous conditions, the problem would be simplified if these cases were presented earlier; but, as is the case with malignant tumors not on the surface of the body, cancer of the bladder as a rule is not recognized until it is far advanced. The condition might be discovered sooner were it not for the failure of the profession at large to recognize the diagnostic importance of hematuria, which is never physiologic but always pathologic. This failure in too many cases allows the growth to progress to such a stage that the operation at best can be little more than palliative. Most tumors of the bladder bleed at some stage in their development, and in the majority of cases, bleeding is an early symptom. Therefore, if the possible significance of hematuria were recognized, the operative results in cases of bladder tumor would bear favorable comparison with early operations for cancer in any other part of the body.

As the symposium for today covers the various forms of treatment of malignant tumors of the bladder, I shall consider only the treatment in those cases in which the vesical end of the ureter is included in the growth. In this discussion a brief consideration of the structure and function of the ureter may be pertinent. The ureter's function is the transportation of urine from the kidney to the bladder, and the prevention of back pressure of urine. If the ureter can properly perform this function its course is of no special concern. The importance of maintaining an unobstructed route for the passage of urine from the kidney is obvious. To subserve this end the ureter has a mucous lining, liable to disturbance by infective forces, a second coat of muscular tissue to insure proper dilatation and contraction, and an outer fibrous connective tissue sheath. For its further protection and efficiency, the ureter lies well protected behind the peritoneum and runs within the bladder wall for a considerable distance (Fig. 1), the distention of the bladder acting as a valve by mechanically closing the ureter and preventing regurgitation.

As the excretion from the kidney is virtually continuous, without the presence of a reservoir—the bladder, the emptying of which is under voluntary control—there would be a constant dribbling of urine, a condition with which one must reckon when, for any cause, it becomes necessary to remove the bladder or to transplant the ureters to an anomalous position.

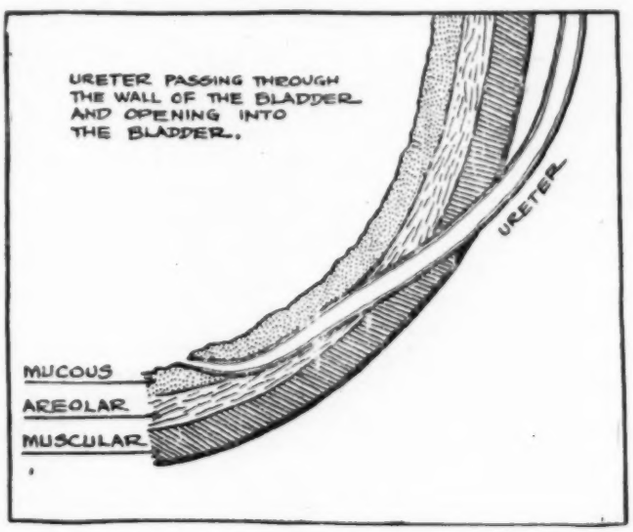

Fig. 1.—Course of ureter through the wall of the bladder.

Several methods of transplantation of the ureters have been commonly employed. One of these is transplantation into the loins, some sort of retainer being used to catch the constant flow of urine. Another is transplantation into the large intestine, generally the rectum. But such methods are obviously not used for the transplantation of only one ureter.

A method frequently used when only one ureter is to be transplanted has been to divide the ureter behind the bladder and transplant it to a point beyond the area of the growth by simply puncturing the wall of the bladder and inserting the ureter, which is secured by two flaps. As a result of this procedure the ureter dilates very readily and usually becomes infected, the infection extending upward to the pelvis and calices of the kidney. In several cases I have been obliged to remove the kidney destroyed as a result of the infection and distention of the ureter after this type of transplantation.

In fact, to dissect out the ureter and then transplant it to another part of the bladder so that it will properly function is not by any means a simple procedure; moreover, such a procedure necessarily prolongs the operation considerably. As these cases, as a rule, are bad

* Chairman's address, read before the Section on Urology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

risks, such a prolongation of the operation in itself is detrimental. It is necessary, therefore, to plan a technic which will be free from the objections to the procedures described above, and which will keep the ureter under as nearly normal conditions as is possible, while at the same time it will not unduly lengthen or magnify the operation.

To this end the methods described below have been employed: the first is used in cases in which a portion

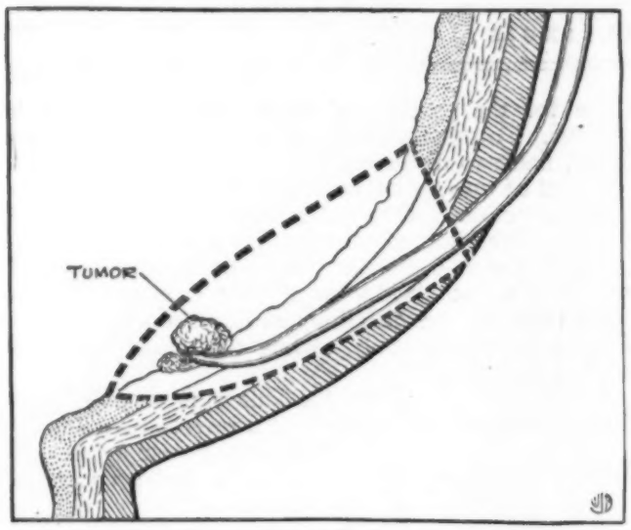

Fig. 2.—Excision of growth involving vesical end of ureter: line of incision.

of the bladder wall is involved, including one ureteral orifice; the second, in cases in which the greater part of the bladder is involved and when palliative measures seem the only possible end to be attained, though occasionally a complete cure is possible.

DISPOSITION OF THE URETERS IN CASES OF PARTIAL EXCISION OF THE BLADDER

In the first class of cases referred to above I have for some years employed a method which, as far as I can discover after a careful search of the literature, has not been reported by any surgeon, although it has undoubtedly been used.

When the tumor is situated at the vesical end of the ureter, an elliptic incision is made (Fig. 2), the dissection being made sufficiently wide and deep to insure the complete removal of the growth. As a rule, this dissection does not necessitate the resection of the ureter for more than from one-half to three-fourths inch. After the resection, the wound is closed by interrupted catgut sutures (Fig. 3); I generally use 000 chromic catgut. These sutures are adjusted without tension, so that they simply arrest hemorrhage. The ureter is not disturbed from its normal environment, and the urine which trickles down at regular intervals finds its way into the bladder between the sutures (Fig. 4). A mucous membrane soon forms, and a ureteral opening is reestablished, which generally is situated somewhat higher than the ureteral opening on the opposite side.

After this procedure had been employed several times it was a pleasure and a relief to note that there followed no renal colic and no evidence of ureteral obstruction, and later cystoscopic examination demonstrated that urine was being emitted from the ureters.

In order to confirm the clinical data I have performed a number of experiments on animals and have found that by resecting the vesical end of the ureter and making only a sufficient adjustment to arrest hemorrhage without occlusion of the ureteral orifice, a patent fistula is soon formed. If the wound separates, as it is likely to do if infection occurs, then there may be formed a shallow diverticulum with the ureteral orifice in the center.

This ureteral opening may be somewhat constricted, but in no case have I had evidence of a sufficient constriction to produce a hydronephrosis. On the other hand, if the cut edges are very closely approximated, the wound may unite and cause more or less of a constriction, as happened in one of the experimental cases in which a dilated ureter and hydronephrosis resulted.

By this method a tumor may be excised with a sufficiently wide margin to insure its complete removal and the ureter remain transplanted, as it were, in situ. This is a much simpler method than the transplantation of the ureter to some other part of the bladder. Moreover, it has the advantage of assuring the protection of the ureter by its normal covering and, when the bladder is distended, tends to prevent regurgitation. With the assurance that the flow of urine will not be obstructed, the operator can concentrate his attention more directly on the radical excision of the growth than is possible when the transplanatation of the ureter must be considered also.

DISPOSITION OF URETERS IN CASES OF TOTAL EXTIRPATION OF BLADDER

The general procedure in these cases has been discussed in a paper previously read before this section. It is referred to here merely to complete the discussion and to emphasize the importance of providing as nearly normal conditions as possible for the transplanted ureters. To this end I employ in the main the

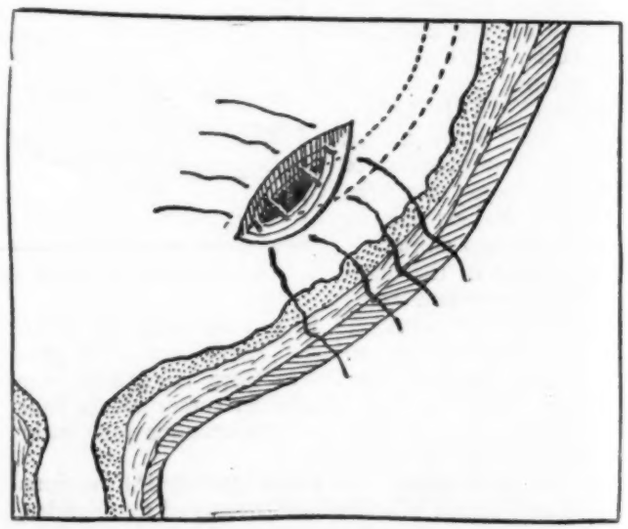

Fig. 3.—Closure of wound after excision of growth involving vesical end of ureter.

technic of Coffey, whereby the ureters are transplanted into some portion of the large intestine, preferably the sigmoid or the rectum as near the bladder as possible. To provide the ureter with a near approach to the normal protection of that portion which passes through the walls of the bladder, the intestine is split *to* but not through the mucous membrane, on which the ureter is laid lengthwise, the end being passed within the intestine. The walls of the

split intestine are then closed over the ureter. That is the way the ureter passes into the bladder, the way the common duct passes into the duodenum. It is nature's method of making a valve and, as Coffey described it, it is a "physiologic transplantation." When the bladder or the intestine is distended, the ureter is closed and regurgitation is prevented. The operation in this class of cases is performed in multiple stages—first, the transplantation of one ureter;

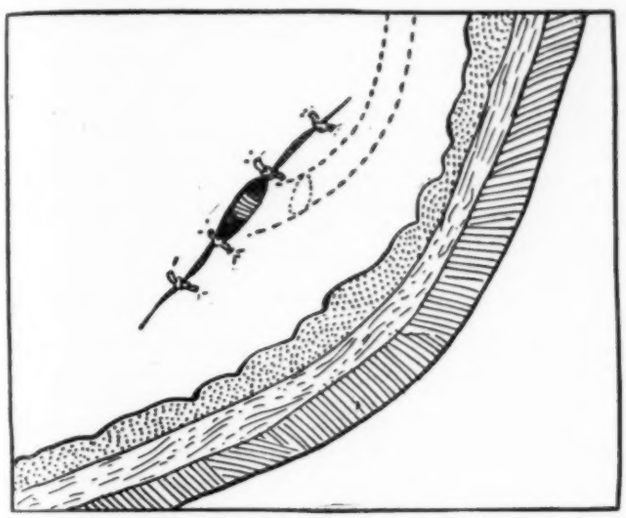

Fig. 4.—Schematic drawing of ureter in situ after excision of growth involving the vesical end.

then the transplantation of the second ureter after the patency and efficiency of the first transplantation is assured; and finally the extirpation of the bladder.

SUMMARY

In any surgical procedure, the more nearly natural conditions may be conserved the greater the probability of success. By the application of this principle in the transplantation of the ureters, the operation is simplified and the efficiency of the ureter conserved.

ACUTE INFECTIOUS MYOCLONUS MULTIPLEX AND EPIDEMIC MYOCLONUS MULTIPLEX

(EPIDEMIC ENCEPHALITIS)

J. RAMSAY HUNT, M.D.
Consulting Neurologist, New York Neurological Institute and the New York Hospital
NEW YORK

As acute infectious myoclonus multiplex I would direct attention to an unusual clinical type of acute infection of the nervous system which may appear both in sporadic and in epidemic form. The isolated or sporadic form is quite rare. Epidemic myoclonus multiplex, on the other hand, has been of frequent occurrence during the last winter and represents a special type of the epidemic encephalitis.

SYMPTOMATOLOGY

The onset of the disease is acute and is characterized by sharp shooting pains in the trunks and extremities, at first local but rapidly becoming generalized. They may reach an extreme degree of intensity. Spinal pains are sometimes present but are not nearly so intense as in the more peripheral areas.

The pains are soon followed by the pathognomonic muscle jerks, waves and twitchings (myoclonus and myokymia multiplex) that characterize the affection. The muscle contractions follow in the wake of the pain and make their appearance in those parts where the pains were first manifested. In some cases an interval of a week may elapse before the appearance of myoclonus and myokymia. The twitchings are bilateral and multiple, and may be generalized. A tendency to localization in certain regions of the body may occur, the muscles of the abdomen and lower extremities showing an especial vulnerability. The contractions are of quick clonic character, involving individual muscles or portions of muscles, but not synergic groups, so that the resulting locomotor effect is comparatively slight.

In many of the casees there is well marked delirium, which varies in duration and intensity with the severity of the infection. In milder types there may be only irritability, restlessness and insomnia, associated with anxiety and apprehension. The myoclonus-delirium presents the characteristics of a toxic delirium, and is characterized by hallucinations, illusions and transitory delusions. There are restlessness, insomnia, apprehension, disconnected thought and mental confusion. The symptoms are all more conspicuous at night, and the delirium content frequently takes on an occupation form. In the graver cases there is an attention disorder with symptoms of Korsakoff's syndrome. In the late stage there may be apathy and a tendency to stupor.

During the course of the disease there is moderate fever, acceleration of the pulse, and often hyperhidrosis. The degree of sweating seems to bear a relation to the activity of the muscular phenomena. There is no tenderness of the nerve trunks, but during the painful stage there is general sensitiveness to movement and surface impressions (hyperesthesia). The myotatic irritability of the affected muscles may be increased, and there is sometimes an exaggeration of the normal idiomuscular response (myoidema).

There is no paralysis or paresis of any muscle or group of muscles. The sensory disturbances are chiefly irritative in character, consisting of pain, hyperesthesia and occasional paresthesias in the distal parts of the extremities. There is no anesthesia in the usual sense, and only rarely a diminished sensibility to pain during the acute stage of the disease. There is no ataxia and no loss of the deep sensibility. The tendon reflexes are usually present and active. Occasionally, in the late stages the Achilles jerks and the knee jerks are diminished or not elicitable.

There are no other evidences of organic disease of the nervous system, and the clinical picture is characterized by myoclonus and myokymia multiplex, lancinating pains and delirium. The mode of onset and course of the disease are suggestive of an infectious process with limited, selective involvement of the central nervous system.

The relationship of the epidemic form of myoclonus multiplex to epidemic encephalitis is shown not only by its prevalence at the same time, but also by various combination forms (cranial nerve palsies and myoclonus) which have been encountered. And there is little doubt that all of these various types are related to the same etiologic factor; whether this be true of

the sporadic type of myoclonus multiplex is, I believe, still an open question.

PARAMYOCLONUS MULTIPLEX AND MYOKYMIA

The peculiar nature of the motor disorder which these cases present is well recognized in neurologic literature, and is described under such headings as paramyoclonus multiplex,[1] myokymia[2] and myoclonus fibrillaris multiplex.[3] They are all to be regarded as representing varying degrees of a fundamental type of motor disorder, referable to the lower motor neurons.

A variety of etiologic factors have been recognized. Among these may be mentioned shock, exhaustion, exposure to cold, diabetes, lead poisoning trauma and alcoholism. Myokymia has also been recorded as a late sequela of sciatica and poliomyelitis. Similar muscular phenomena have also been observed in the course of certain infectious diseases,[4] as diphtheria, malaria and acute articular rheumatism.

Paramyoclonus multiplex and myokymia are not to be confused with myoclonia of the cortical type. Cortical myoclonia is a motor disorder which affects synergic groups of muscles and produces considerable locomotor effect. It resembles much more in the character of movements produced, the chorea or tic convulsif, and is readily differentiated from myoclonus of the spinal type. This is characterized by involvement of individual muscles or portions of muscles which, as such, are not voluntary control.

Myoclonus multiplex, myokymia and muscle fibrillation are therefore referable to the spinal level of the central nervous system and are to be sharply distinguished from myoclonic manifestations of cerebral origin.

Pathology has thrown very little light on the localization and nature of these motor disorders. They are evidently irritative manifestations resulting from direct or reflex excitation of the peripheral motor neurons, the exact seat of which cannot be determined with any degree of certainty in the present state of our knowledge.

The nervous system of Friedreich's original case of paramyoclonus multiplex was subjected to careful pathologic study by Schultze[5] with quite negative results. Some years later I[6] had an opportunity of studying the nervous system of paramyoclonus multiplex (Friedreich's type) by modern histologic methods. No lesions of the nervous system were found that explained the peculiar motor phenomena of this disease. There was, however, some hypertrophy of the muscle fibers which was regarded as an effect and not a cause of the disease.

When one considers the frequency of meningeal, radicular, ganglionic and other forms of spinal and peripheral nerve irritation, in which there are no evidences of myoclonus or myokymia, it would appear hazardous at the present time to attempt a more definite localization of the disorder than as irritative manifestations referable to the spinal level of motility.

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2. Schultze, F.: Beiträge zur Muskelpathologie (Myokymia), Ztschr. f. Nervenh. **6**: 65, 167, 1894.
3. Kny: Ueber ein dem Paramyoclonus multiplex (Friedreich) nahestehendes Krankheitsbild, Arch. f. Psychiat. **19**: 577, 1888.
4. Cited by Eichhorst: Spezielle Pathologie und Therapie **3**: 553, 1907.
5. Schultze: Ueber den Paramyoclonus multiplex (Friedreich), Neurol. Centralbl. **16**: 363, 1886.
6. Hunt, J. R.: A Contribution to the Pathology of Paramyoclonus Multiplex (Friedreich Type), J. Nerv. & Ment. Dis. **30**: 408, 1903.

Nine cases of infectious myoclonus multiplex have come under my observation during the last sixteen years, two sporadic cases, one in 1904, and another in 1914. The remainder were of the epidemic type and occurred during the recent epidemic of lethargic encephalitis.

REPORT OF CASES

THE SPORADIC TYPE

CASE 1.—*History.*—In 1904, while engaged in the pathologic study of a case of paramyoclonus multiplex, I saw in Bellevue Hospital, through the courtesy of Dr. C. L. Dana, this unusual case. It was that of a young man who had been admitted to the ward in delirium, and who presented generalized twitchings and quiverings of the skeletal muscles. These had been preceded by pain. The muscular contractions were similar to those described in cases of paramyoclonus multiplex and myokymia, and were characterized by clonic contractions, muscle waves and fibrillations, producing but slight locomotor effect and not involving synergic groups. They continued during the entire course of the disease, which terminated fatally about a month after admission.

Course.—During this period there was moderate fever, which rose in the later period of the disease. There were no evidences of organic disease of the nervous system other than the myoclonusmyokymia multiplex and the delirium. The reflexes were normal; there were no paralyses and, so far as could be determined, no anesthesias. The delirium was quite active at first, requiring restraint and later passing into stupor. No definite history of the mode of onset could be obtained, excepting that it was acute, and accompanied by pain. The symptoms appeared only shortly before admission, and careful clinical and laboratory examinations at the time failed to throw any light on the nature or origin of the delirium and the myoclonus.

Histologic Examination.—After death a necropsy was performed, and this failed to show any gross lesions of the visceral or nervous system, other than those secondary to an acute infection. The case caused considerable interest and comment at the time, but was finally disposed of as myokymia, occurring in the course of an obscure infection. Through the courtesy of Dr. Dana, the nervous system and some of the muscle tissue were placed at my disposal for microscopic study. Histologic examinations were made of portions of the cerebral cortex; of the brain stem, the spinal cord and peripheral nerves and muscles, and no lesions were found, other than the acute cellular changes characteristic of infection. It was especially noteworthy that the anterior horn cells were in a very good state of preservation; only an occasional cell showed chromatolysis and eccentric position of the nucleus. There were no hemorrhagic or inflammatory foci and no meningeal reaction. The peripheral nerves and muscles revealed no special evidences of disease, and no pathologic lesions were found which would explain the existence of the curious motor disturbance, which at the time (sixteen years ago) was regarded as a toxic, irritative manifestation of the lower motor neurons.

A number of years later, in 1914, I saw at the Neurological Institute with Dr. Pearce Bailey another case of similar nature. I am indebted to Dr. Bailey for the privilege of reporting this case.

CASE 2.—*History.*—A salesman, aged 37, married, and of Irish extraction, was admitted to the Neurological Institute, April 14, 1914, with generalized muscular twitchings, which were diagnosed as paramyoclonus multiplex. The affection began six weeks previously, with very severe pains in the back and legs, following a severe exposure in a snow storm. The pains were so severe that it was difficult for him to find relief in any position. They lasted several days, and then gradually subsided, leaving in their wake curious twitchings and spasmodic contractions of the muscles and a feeling of general weakness. At the time of onset the family physician reported a moderate elevation of temperature (about 100 F.), rapid pulse (120) and a tendency to delirium at night.

The man's previous history was negative, save for pneumonia at the age of 15, and typhoid fever at 22; venereal disease was denied. There was no history of trauma, mental or physical. The patient had been quite moderate in the use of tobacco and of alcohol. There was no history of any alcoholic excesses.

Examination.—On admission, there was a state of general muscular weakness, but no actual paralysis of any group of muscles. The gait and station were rendered slightly uncertain by the muscle jerks and quiverings, but there was no actual ataxia, either static or locomotor. There was a tremor of the hands and the fingers, and clonic contractions and quiverings of the muscles of the forearm. There was no ataxia of the upper extremities.

In both lower extremities, but especially in the muscles of the calf, there was a constant flow of fine and coarse muscular movements. These were wavelike in character, and were plainly visible, involving not only the finer fiber bundles (fibrillation) but also the larger groupings so that fascicular contractions were produced (myokymia); at times the whole muscle was involved in the contraction (myoclonus).

As a result of these movements the feet and legs were in a state of slight constant unrest, as the muscle twitchings were sufficiently forcible to flex and extend the toes, and produce other slight movements of the foot. While these movements were most pronounced in the calf muscles, they were nevertheless present in the muscles of the sole of the foot, and to a lesser degree in the quadriceps, the hamstring muscles and the glutei. The muscles of the back and shoulder girdle showed occasional rapid contractions beneath the skin. At times these contractions followed one another in rapid succession with as great an activity as in the lower extremities. Similar movements were also to be seen in the deltoids, and in slighter degree in the pectoral muscles. The muscles of the arm and hand were only slightly affected. In the recumbent posture the abdominal muscles were the seat of spasmodic and wavelike contractions, similar to those noted in the lower extremities.

The cranial nerves were normal. Articulation at times appeared to be slightly affected, although no definite signs of muscle twitching were visible in the face or tongue. The tendon reflexes were elicitable, and equal on both side. The knee jerks and Achilles jerks were normal, as were the triceps, biceps and supinator jerks of the upper extremities. The abdominal and cremasteric reflexes were present, but diminished. The plantar reflex was of the flexor type. There was no Babinski reflex. When the skin was stroked there was developed a distinct tendency to dermographia. There was also a marked hyperhidrosis, which continued during the entire course of the disease. All sensation, both general and special, was normal.

Ophthalmologic examination, by Dr. Ward Holden, was negative. The vision was 20/20 in each eye. Pupils were equal, and responded normally to light and accommodation. There were no fundus changes. The heart and lungs were normal.

April 16, blood count revealed: red cells 4,912,000; hemoglobin, 91 per cent.; white blood corpuscles, 19,200; differential count: neutrophils, 60 per cent.; small lymphocytes, 28 per cent.; transitionals, 1 per cent.; large lymphocytes, 10 per cent.; eosinophils, 1 per cent. The Wassermann test of the blood was negative.

April 21, the Wassermann test of the spinal fluid was negative; globulin content, negative; 6 cells per cubic millimeter; Fehling's reduction, positive; blood culture, negative.

April 14, the specific gravity of the urine was 1.026. It was acid. No albumin, sugar, excess of indican, casts or blood was noted.

Examination of the feces was negative.

Subsequent Course.—The patient remained in the hospital from April 14 to May 9, 1914. During this time there was no fever; the pulse was rapid, and ranged from 115 to 120. The systolic blood pressure curve ranged from 160 to 180. Respirations ranged from 20 to 30 to the minute.

During the entire period of observation in the hospital and up to the time of the patient's discharge, there was a distinct tendency to delirium. He was restless and nervous, continually getting out of bed, and showing evidences of apprehension at night. It was difficult to restrain him. At times he was noisy and would shout; he would hold imaginary conversations with people, talked to himself, and thought that people were in the room with him. During the day he was quieter and much more manageable, but at night the delirium would come on, and he would become restless, excited, see faces and imaginary people in the room, and would hold imaginary conversations during the greater part of the night. At such times he perspired very freely. One night he had a sense of pressure and of a heavy weight on his chest and thought that some one was throwing something down on him. During this period there was constant insomnia, and he was confused and talked irrationally. On other occasions he would become rather troublesome and threatening with the nurses so that restraint was necessary. Once he thought he had spikes in his head and tried to pull them out. In the morning these symptoms would usually clear up and he was much brighter. On another occasion he said he must have his clothes: that he was going to Chicago on the first express train to transact important business. He spoke of having some kind of a bug in his head, but could not think of the correct name of it. He said they would go around in circles, and stretched a piece of rubber until it snapped. He said he knew of a man in Chicago who had invented a machine for killing these bugs—that the bugs would put their heads in the hole of the trap, and immediately their heads would be burned off. This condition of nocturnal delirium and slight mental confusion continued during the entire period that he was in the hospital. He was a restless and rather troublesome patient and difficult to manage. He was discharged, May 24, slightly improved. The mental condition was better, and the muscular movements had diminished in frequency and intensity.

Subsequently his family physician reported that five months after his discharge he returned to work, having gained 40 pounds in weight, and has since enjoyed his usual health.

Reexamination, May 19, 1916, revealed fibrillary twitchings in the legs; otherwise the neurologic examination was negative. His mental condition was entirely normal, and for a year and a half he has held a position of manager and buyer for a large department store.

EPIDEMIC TYPE

CASE 3.—*History.*—In January of the present year I saw, in consultation with Dr. Martin Burke, a man, aged 50, married, the father of four children. He was a merchant and had led a rather sedentary life. In recent years he had put on considerable weight. There was no history of syphilis. Formerly he had been rather free in the use of alcohol, but of late years he had been quite moderate in this respect.

There was no history of trauma, mental or physical. The disease from which he suffered was of acute onset and was ushered in by excruciating pains in the extremities, beginning in the arms and gradually extending to the trunk and legs. These pains were sharp and shooting in character, requiring analgesics for their relief. They continued with uninterrupted severity for fully a week. On the third day, curious muscle jerks and twitchings made their appearance in the arms and legs, and later in the trunk and abdominal muscles. At first they were quite active in the upper extremities, so that finer voluntary movements were interfered with. On standing and walking, while there was no true ataxia, a slight disturbance of the harmony of movement was manifest, owing to the effect on the extremities of the constant muscle waves and twitchings. There was slight fever from the very beginning, which continued throughout the course of the affection, ranging from 100 to 102 F. The pulse was accelerated, and varied from 100 to 110 beats a minute. Even during the first week a tendency to nocturnal delirium was noted. The patient thought that strange persons were in the room, and became anxious and apprehensive; at other times, he imagined that he was in the country and wanted to get up and go out for the cows. At first the delirium was only at night, but subsequently evidences of mental confusion were present also during the day, with memory falsifications and hallucinations. He frequently talked as if he had been out of the house a short

time before, described what he had seen at the moving picture show, whom he met on the street, and the conversations that he had. Occasionally, he thought he was on the sea, and that his bedroom was a cabin on a ship. He was in a depressed mood much of the time. At other periods he was rather excited and talkative. Later the mental confusion took on the aspect of a mild form of Korsakoff's syndrome, which persisted up to the time of his death.

Examination.—Jan. 22, 1920, the patient was large and obese, with a heavy, prominent abdomen. The face was flushed and the eyes bright. He was quite responsive and answered correctly questions as to his symptoms and mode of onset. The gait and station showed no Romberg symptom and no ataxia, but yet were slightly altered by the incessant spontaneous muscle spasms and twitchings. The articulation also presented at times a very slight disturbance, which was to be ascribed to the occasional muscle waves in the musculature of the face and tongue. When the patient was stripped and in a recumbent posture, the muscles of the trunk, abdomen and legs were observed to be in a very active state of myoclonus and myokymia. This condition had been present in the upper extremities, but had subsided and was not present at this examination. An occasional fibrillary twitching or wave was to be noted in the facial musculature and was also present in the tongue muscle, which may account for the very slight dysarthric disturbance that was noted. Coarse muscle waves and fibrillary twitchings were present in all the muscles of the lower extremities, especially on the posterior aspect, in the glutei, hamstring, and calf muscles. At times these movements were so strong as to produce a slight but distinct locomotor effect of the extremity; but as a rule these sudden brief contractions of portions of the muscle mass were not strong or pronounced enough to produce movement, or changes in the posture of the extremity. Percussion of the muscles revealed an increased myotatic irritability and a marked accentuation of the idiomuscular response. The most unusual muscular phenomena, however, was to be noted in the abdomen. The prominent abdomen was tossed about in a most bizarre and unusual manner by coarse muscle waves and contractions. I have rarely observed a more striking symptom than that of the abdomen being rocked and contorted by these innumerable waves of muscle contractions. There was no paralysis of any muscle group, but a state of general muscular weakness was present. There was no singultus.

Sensation was normal, and there were no paresthesias, although numbness and tingling were present at the onset of the disease. The pupils were equal, and reacted promptly to light and accommodation. There was no nystagmus, and the fundus oculi was normal. The cranial nerves were normal.

All of the tendon reflexes of the upper extremities were elicitable and active (the supinator, biceps and triceps jerks). The knee jerks and Achilles jerks were also present and equal.

The plantar reflex was normal (no Babinski response). The abdominal reflexes were elicitable and were quite exaggerated. The heart was enlarged, and the heart sounds were rather feeble. There were no murmurs. The pulse rate was 100 beats to the minute. The systolic blood pressure was 170. The lungs were normal. The urine showed a trace of albumin and a few hyaline casts. There was no sugar. The phenolsulphonephthalein tests disclosed a renal functional activity of 60 per cent.

Subsequent Course.—Feb. 3, 1920, the patient's condition was decidedly worse. The temperature ranged from 102 to 103 F.; the pulse was more rapid, the breathing, hurried. The lungs were free from râles, and the heart sounds were weaker. The mental condition was worse. There was nocturnal delirium, with Korsakoff's syndrome. The patient imagined that he went out and had been to the movies earlier in the day; he talked as if he had met me a few hours before, and that he was going out again shortly. He related constantly imaginary events of this kind, with occasional hallucinations, and at times saw strange faces and imaginary people. In other respects he was fairly clear, knew those about him, and knew that he was in his own house; but there also was a tendency for him to become somewhat confused and disconnected in his ideas. The pains had ceased entirely and required no special medication. Muscle twitchings and contractions still persisted and were somewhat less active. The abdominal musculature appeared to be the storm center of the contractions at that time, and gave the patient the greatest discomfort. The hand placed over the calf muscles, however, revealed a sense of undulation which was scarcely visible to the naked eye and was evidenly dependent on deep seated muscle waves and twitchings that were not registered on the surface.

The abdominal reflexes were still quite active and showed a hyperexcitability of the reflex response. The knee jerks were difficult to elicit, and were diminished. The Achilles jerks were not obtained. The plantar reflexes were normal.

The patient continued in this condition, gradually growing worse, both mentally and physically. Fever ranged from 102 to 103 F. The delirium and myoclonus multiplex continued up to the last. The heart action gradually failed and the patient succumbed five days later, about four weeks from the time of the onset of the disease.

Case 4.—*History.*—A man aged 38, a clerk, who came under my observation in January, 1920, whose previous history was negative, had been a resident of New York for some years. The onset of the disease was sudden, and was ushered in by very severe shooting pains in the feet and legs. These were most distressing in their severity, and continued for about four or five days. After this they diminished somewhat in the lower extremities, but appeared in the hands and arms. He stated that during the first few days the feet and legs were numb from the knees down, but this passed away with the pains and did not return. The pains were described as sharp and biting in character, both in the lower and in the upper extremities. The muscular twitchings were not observed until the sixth day of the disease, when they made their appearance in the lower extremities. They appeared only after the pains had diminished in intensity and were subsiding. Later the muscular twitchings extended to the muscles of the trunk and were especially severe in the region of the abdomen, the muscle walls of the abdomen being the seat of muscular waves and contractions which, although not painful, caused the patient considerable discomfort and uneasiness. The arms were also affected with the muscular twitchings, but in a lesser degree. From the first and during the first two weeks of the disease there was a moderate fever, the temperature not rising above 100 to 101 F. The pulse was somewhat exaggerated, and ranged from 85 to 100. At times during this period there was nocturnal delirium. This was not very severe, but it was stated that the patient would carry on imaginary conversations, would see strange faces, and menacing figures in the room, and was at times apprehensive, restless and excited, attempting to get out of bed and go out in the hall. During the day he was comparatively free from these exciting episodes, but was somewhat confused and at times was irrational and disconnected in his speech, relating imaginary happenings and adventures.

Examination.—There was a condition of generalized myoclonus multiplex, affecting the legs and muscles of the back and abdomen and the upper extremities. There was a slight tremor of the outstretched hands, and on standing and walking a very slight uncertainty was produced by muscular waves and twitchings. The twitchings varied in character and degree in different muscles. There were fibrillations, muscle waves, and even contractions of the entire muscles, although the fibrillary and wavelike movements predominated, and it was only occasionally that the entire muscle was observed in momentary contraction. There was but little motor effect produced on the extremities, and the muscle disturbance was of such character as to expend itself in partial muscular contraction without much locomotor effect. The contractile manifestations were generalized, and bore no especial relation to individual muscles or to their synergic activities. They were most marked in the muscles of the calf and posterior aspects of the thigh. If the hand was placed on the calf muscles or the abdominal wall, there was distinct sensation of wavelike movements and undulations, which was very characteristic. There was no paralysis of any muscles or muscle group,

although a state of general muscular weakness was complained of. The muscle and nerve trunks were sensitive during the first week of the disease, and then subsided with the pain, and after this there was no demonstrable tenderness of nerve trunks or muscle tissues. In the early period of the disease there was a marked tendency to sweating, which was still present, but in a lesser degree. On direct percussion of the muscles the myotatic irritation was found to be increased and the idiomuscular response was very pronounced, a large welt developing at the side of the percussion which gradually subsided.

The pupils were equal and responded to light and accommodation. The cranial nerves were normal. The fundus oculi was normal. No myokymic twitchings were noted in the face or tongue. The arm jerks were present (supinator, biceps and triceps), and were equal on the two sides. The knee jerks were present and equal. The Achilles jerks were not elicitable. The plantar reflexes were normal. The abdominal and cremasteric responses were present, with some exaggeration of the abdominal reflex. Pain sensibility of the leg, below the knee, was somewhat blunted; otherwise the sensibility, both superficial and deep, was normal. The heart, lungs and urine were negative.

CASE 5.—*History.*—A single man, aged 25, a conductor, suffered from sharp shooting pains in the back and legs which began suddenly. They appeared at first on one side, but a day or two later on the opposite side. These were very severe and caused acute suffering, especially at night. They gradually extended to the trunk and arms, and at the end of a week began to subside. The characteristic muscle twitchings were noted during the end of the first week in the legs, trunks, abdomen and arms in the order mentioned, and appeared to follow in the wake of the pains. The abdominal muscles were especially affected by the spasmodic and undulating, wavelike movements.

There was moderate fever and an acceleration of the pulse, with some tendency to excessive sweating. During the first week of the disease the patient was delirious at night, his thoughts wandered, and he saw strange faces and strange people in the room and talked disconnectedly. At these times he talked as if pursuing his ordinary occupation, calling out the names of his fellow workers and giving orders. These delirious manifestations subsided at the end of the second week and did not recur.

Examination.—The patient was well developed, and in good general health. The gait and station were normal, with no weakness or paralysis in the extremities or of any muscle group. He complained, however, of general muscular weakness and of being easily fatigued. There was no tenderness of the nerve trunks or of the muscles. The tendon reflexes of both upper and lower extremities were elicitable and were equal on the two sides. Percussion of the muscles revealed marked myotatic irritability and a well marked idiomuscular response. All qualities of sensation were normal. The cranial nerves were normal. The pupils reacted normally, and the fundi oculi were normal. The heart and lungs were negative. The urine was normal. The Wassermann test of the blood was normal.

CASES 6-9 (abstract of case reports).—In February and March, 1920, four cases of the epidemic type were seen, in consultation with Dr. Lewis A. Conner and Dr. William R. Williams, in the medical wards of the New York Hospital. These cases presented the same symptoms but in somewhat milder form than those which have just been described. All were in young adults, three of whom were men and one was a woman. The onset was acute, and accompanied by sharp shooting pains in the extremities and trunk which continued from four to five weeks. In all four the myoclonus and myokymia multiplex were limited to the muscles of the trunk and especially the abdominal musculature. It was also present in the muscles of the lumbodorsal region.

There was no well defined delirium in any of these cases. In all, however, there was present insomnia, great restlessness, apprehension and irritability. There was no tenderness of the nerve trunks and no anesthesias. There were no evidences of weakness or of paralysis in any cranial or spinal distribution.

The knee jerks were present, and the Achilles jerks were elicitable in all save one. In this group of cases the pains were more persistent and severe and the muscular jerks and twitchings milder than in those observed in the earlier period of the epidemic. Blood culture was taken in two cases and found negative. There was no leukocytosis. The spinal fluid showed no abnormalities in three cases; in one there was a slight increase of lymphocyte (30) cells. All the patients eventually recovered.

COMMENT [7]

The cases just described present a striking similarity in the clinical picture, varying only in degree and in severity. The special and distinguishing symptoms are the muscle waves and twitchings, and the shooting pains. Often there is dilirium. This was a marked feature of all the cases, except those appearing in the later period of the epidemic when a mild and comparatively localized type of myoclonus multiplex made its appearance.

The myoclonus and myokymia multiplex, however, are alone characteristic, as pain and delirium may occur in the course of other acute infections.

The disease begins abruptly, with shooting pains, which increase in intensity and rapidly become generalized. These may begin in either the upper or lower extremities. In the cases that I observed they were limited to the trunk and extremities and were not manifested in the sensory distribution of the cranial nerves. In all of the cases they were exceedingly sharp and caused acute suffering. Only rarely were paresthesias noted, with occasional blunting of pain sensibility. The muscle jerks and twitchings followed either immediately in the wake of the pains or more commonly after an interval of a few days. Usually they continued long after all pain had disappeared. All degrees of muscle contractions were present, namely, fibrillation (myoclonus multiplex fibrillaris) muscle wave (myokymia) and contractions of the whole body of the muscle (myoclonus). The surface of the body reflected a variety of muscle contraction with only slight, if any, locomotor effect on the extremities. When the myoclonus was of a more severe type, the gait and station and voluntary movements of the arms were slightly disturbed by the play and undulation of the muscles.

In the sporadic cases, the muscle waves and twitchings were generalized, and this was also true of the earlier cases of epidemic type which came under my observation. Later, when the epidemic was on the wane, a milder type was encountered, without active delirium, and muscle twitching was limited to the lower half of the trunk muscles. In this group of cases, pain was quite severe and very persistent. No other evidences of organic disease of the central nervous system were demonstrable. One of the most striking symptoms was the severity of the involvement of the muscles of the abdomen in all of the cases. This is rather significant, as I have not observed it in anything like the same degree in myoclonus and myokymia multiplex from other causes. Singultus was not observed in any case.

DIFFERENTIAL DIAGNOSIS

The nature of the disease becomes clear as soon as the characteristic muscle jerks and twitchings make their appearance. Before this it would be difficult to

7. Cases of the epidemic type have been observed by Boveri, P.: Brit. M. J. **1**: 570 (April 24) 1920. Pardee, I. H.: Arch. Neurol. & Psychiat. **4**: 24 (July) 1920, and later reports will no doubt show the comparative frequency of this clinical type. So far as I am aware, examples of the sporadic form have not been previously recorded.

exclude any acute disease beginning with sharp pains, and presenting the other evidences of a general infection.

Multiple neuritis with delirium may be excluded by the absence of motor or sensory paralysis and of tenderness.

Acute poliomyelitis may also be excluded by the absence of paralyses and consecutive muscular atrophy. Dubini's disease, an obscure affection of the nervous system, which is epidemic in certain parts of Italy, notably Lombardi, may also be excluded. This affection in its more acute form is characterized by headache and backache, and is followed by myoclonic contractions of cerebral origin; hence the term chorea electrica; also convulsive attacks resembling jacksonian epilepsy. Later there is paralysis of certain muscle groups which had been the seat of myoclonus, with wasting and changes in the electrical reaction. It is an obscure form of encephalomyelitis which may occur in acute and chronic forms. The sensorium is, as a rule, free. So far as I know, the disease has not been observed in this country.

The affection might present a marked resemblance to the infectious chorea with mental symptoms (chorea insaniens). The nature of the motor disorder is, however, quite different. In chorea, there are purposeless, incoordinate movements, with marked and characteristic motor effects in contrast to the muscle jerks and twitchings of the myoclonus-myokymia type, which are not under synergic control, and which are indicated by waves and undulations rather than by movements of the part. In both diseases, infectious chorea and infectious myoclonus, the mental disturbances are those of toxic delirium. In the more severe cases (chorea insaniens), the symptomatology is that of a grave toxic psychosis with chorea. A similar termination may occur in the more severe forms of infectious myoclonus and a myoclonus insaniens may result, in which a grave toxic psychosis is associated with the motor manifestations of myoclonus multiplex.

Epidemic encephalitis, or lethargic encephalitis, should be especially considered in this relation, as it has reached epidemic proportions at the present time and may occur in a variety of clinical forms; cerebral, spinal and neural. What has been described as epidemic myoclonus multiplex undoubtedly belongs to this group, and represents a special "myoclonus-myokymia type" of this affection, a point of view which is strengthened by the coexistence of undoubted cases of epidemic encephalitis with myoclonus and myokymia multiplex. The relation of the "sporadic type" to the epidemic form is, I believe, still an open question and cannot be settled until we know of the etiologic factors involved.

CONCLUSION

The acute infectious myoclonus multiplex may, therefore, be regarded as a definite clinical type of acute neural infection.

In its epidemic form, it is a part of the large clinical group that has been so prevalent during the last two years in this country and in Europe—the epidemic of lethargic encephalitis.

The relation of the sporadic to the epidemic type of infectious myoclonus multiplex is still problematic, although it would appear probable that they are of similar origin, and that the epidemic encephalitis has been appearing for a considerable time unrecognized, in certain sporadic forms. That the disorder is of infectious origin and referable to a micro-organism or its toxic product is made clear by the mode of onset, course and general symptomatology.

At to special etiologic considerations, it would appear likely that a special strain of the organism has acquired an affinity for certain tissues of the nervous system, and in this way the peculiar and very limited clinical reaction of infectious myoclonus multiplex has been produced. Other factors of a more theoretical nature may also be considered, as exhaustion or biologic inferiority of certain neural systems which render them more susceptible to the deleterious influences of disease.

To those who are interested in the theory of the elective localization of bacteria, the organisms or virus obtained from cases of this clinical type, with its peculiarly limited form of neural involvement, would offer especial advantages for experimental study.

46 West Fifty-Fifth Street.

ACUTE METHYL ALCOHOL POISONING*

RAPHAEL ISAACS, M.A., M.D.
Instructor in Internal Medicine, University of Cincinnati College of Medicine
CINCINNATI

The increasing incidence of poisoning with wood alcohol has shown the necessity for an efficient method of treatment. A study of a series of cases in the medical wards of the Cincinnati General Hospital has led to a plan of treatment that promises to be of value in saving life and in preventing blindness, the most serious of the complications of the convalescent.

The methyl alcohol is taken either in the form of denatured ethyl alcohol, or as commercial wood alcohol, usually with the intention of taking a substitute for whisky. Cases of suicidal poisoning or accidental and occupational forms are also encountered. The symptoms vary with the amount taken, the type of the mixture and the length of time before treatment is begun.

SYMPTOMS AND PATHOLOGY

In the extreme cases the patients are brought in in a comatose condition, usually with cyanosis which sometimes is very intense. In a fatal case, in which the patient was admitted to the wards in a moribund condition, the color was a deep blue-black. The cyanosis is more marked over the upper part of the body—chest, arms and hands, neck and head—than over the lower part, although the feet may be blue and cold in severe cases.

Methyl alcohol appears to act as a respiratory poison, the rate of breathing in severe cases being reduced to six or fewer times per minute and quite shallow. In the mild cases the respiration rate may not be affected, and sometimes, especially if complicated by other substances, as ethyl alcohol, Jamaica ginger, lemon extract and other similar whisky substitutes, the rate may be more rapid, commonly 24. One case, complicated by strychnin poisoning and bronchopneumonia, developed a rate of 36. The breath usually has the odor of methyl alcohol, showing pulmonary excretion of the poison.

The temperature is subnormal at times, but usually reaches 99 some time during the first twenty-four

* From the Department of Medicine, University of Cincinnati and the Cincinnati General Hospital.

hours, remaining normal after this in the uncomplicated cases.

During the acute stages the pulse is accelerated, reaching 100 and over (120). In a fatal case the heart continued to beat for several minutes after respiration had ceased. With improvement, there is a slowing of the pulse. The heart sounds are usually clear, but not very forceful.

A characteristic feature is dilatation of the pupils, which, however, may react somewhat to strong light. With return of full consciousness, the patients usually complain of blurring of vision, noted in from one to twelve hours. Often the ophthalmoscope fails to show any abnormal appearance, although serous exudates along the course of the blood vessels, hyperemia of the disk, with blurring of the edges, sometimes of the nasal side only, and finally optic atrophy, with contraction of the retinal vessels and peripheral limitation of the field of vision, are sometimes noted. The conjunctiva may be congested.

Headache is usually experienced, being quite constant on the following day, with sometimes a feeling of numbness in the head. At postmortem there is a marked edema and congestion of the brain and meninges, with increase in the cerebrospinal fluid. On spinal puncture, the fluid is clear and under increased pressure. There may be no increase in globulin or cell count. Vertigo is frequently present.

Nausea is usually present, vomiting, frequently. The vomitus, sometime after gastric lavage, may still have the odor of methyl alcohol. Pain, at times cramplike, may be present in the epigastrium, with tenderness, or in the lower part of the abdomen. During the toxic stage there may be incontinence of urine and feces. Postmortem there is some edema of the gastric mucosa, with increase in mucus, and numerous deep red areas of ecchymosis. The liver is brownish, and the cut section is lusterless and very friable, and easily crushed. The kidneys show injection of the surface and internal vessels, and there is some cloudy swelling. During life the urine may show a trace of albumin, with or without casts, and is usually acid to methyl red. Acetone bodies are usually absent. A volatile compound, which reduces Fehling's solution, may be present. Krol [1] found an increased ammonia output in dogs. There may be a preliminary period of anuria. The blood often is a deep chocolate color, such as is seen in conditions in which methemoglobin is formed, and is spectroscopically similar. Harrop and Benedict [2] report definite findings of acidosis in a case of methyl alcohol poisoning, with the bicarbonate content of the blood plasma equivalent to 36.4 per cent. by volume of carbon dioxid.

The mode of action of the toxic agent is still problematic. Wassermann and Keysser [3] considered the effect to be due to "toxic peptids" resulting from the action of the methyl alcohol on the proteins of the gastro-intestinal tract. Stadelmann [4] suggested that the slow oxidation of the alcohol resulted in accumulation, with resulting toxic action. Magnus-Levy [4] pointed out a possible similarity between the action of the poison and that of the toxins and ptomains, and suggested the possibility of methylization of compounds found in the body. Kobert [5] noted the selective poisonous action of the drug on different people, describing it as due to idiosyncrasy. Others consider the poisonous action to be due to the impurities, as furfurol and oxalic acid. The action of the pure and impure wood alcohol, however, does not seem to differ materially (Hunt,[6] Buller and Wood [7]), and the impurities themselves give other or less marked symptoms, in the amounts present (Baskerville [8]). Pohl [9] considered that the toxicity was caused by the formation of formic acid from incomplete oxidation of methyl alcohol. The resulting "acidosis" was considered by Krol [1] to be the cause of the syndrome.

The symptoms seem to group themselves into a paralysis or depression of the medulla and the cranial autonomic system, sometimes the sacral, with an additional selective action on the optic and possibly other nerves. Symptoms may be severe after the drinking of small amounts, or light even after large amounts have been taken, depending on the individual and his previous experiences, as well as the conditions under which the methyl alcohol was taken, as after heavy excesses with ethyl alcohol.

TREATMENT

Various treatments have been recommended. These consist of stimulants, as caffein, epinephrin, strychnin, digitalis, camphor, oxygen, pilocarpin and also potassium iodid. Gettler and St. George [10] suggest saline or sodium bicarbonate infusions and phlebotomy, with repeated gastric and rectal lavage. Fenton [11] reports a case of blindness in which the patient recovered after the instillation of ethylmorphin hydrochlorid (dionin) into the eyes. The patient was taking sodium bicarbonate freely by mouth. Harrop and Benedict [2] report the recovery of a patient following 5 per cent. solution of sodium bicarbonate intravenously.

The plan of treatment is based on alkalization and elimination. If the patient is not comatose, and is received within twelve hours after taking the wood alcohol, it is well to pass a stomach tube and wash out the contents with a 1 or 2 per cent. solution of sodium bicarbonate in warm water, as experience has shown that some of the alcohol is excreted into the stomach. Three or four ounces of a 50 per cent. solution of magnesium sulphate solution are then poured in through the tube and left in the stomach. Sometimes an hour or more after washing, the patient will vomit a considerable amount of food débris having a marked odor of methyl alcohol. The patient is put to bed, kept warm if his temperature is low, and is given 3 gm. of sodium bicarbonate, with about 250 c.c. of water every two hours, for about six doses, being awakened for his medication if asleep. Sometimes a whiff or two of aromatic spirits of ammonia will serve to awaken the patient enough to make him swallow. The dose of bicarbonate may be doubled without apparent ill effects.

1. Krol, J.: Ueber das Wesen der Methylalkoholvergiftung, Arch. f. exper. Path. u. Pharmakol. **72**: 450 (July 3) 1913.
2. Harrop, G. A., Jr., and Benedict, E. M.: Acute Methyl Alcohol Poisoning Associated with Acidosis, J. A. M. A. **74**: 25 (Jan. 3) 1920.
3. Wassermann, M., and Keysser, F.: Ueber Toxopeptide, Folia Serolog. **7**: 243, 1911.
4. Stadelmann and Magnus-Levy: Ueber die in der Weihnachtszeit vorgekommenen Massenvergiftungen in Berlin, Tr. Berlin med. Gesellsch., Oct. 1, 1912.
5. Kobert, R.: Kompendium der praktischen Toxikologie, Ed. 5, 1912, p. 219.
6. Hunt, Reid: The Toxicity of Methyl Alcohol, Bull. Johns Hopkins Hosp. **13**: 213 (Aug.-Sept.) 1902.
7. Wood, C. A., and Buller, Frank: Poisoning by Wood Alcohol, J. A. M. A. **43**: 972 (Oct. 1), 1058 (Oct. 8), 1117 (Oct. 15), 1213 (Oct. 22), 1289 (Oct. 29), 1904.
8. Baskerville, C.: Air Impurities: Dusts, Fumes and Gases, New York M. J. **96**: 1061, 1119, 1912.
9. Pohl, J.: Ueber die Oxydation des Methyl. und Aethylalkohols im Thierkörper, Arch. f. exper. Path. u. Pharmakol. **31**: 281, 1893.
10. Gettler, A. O., and St. George, A. V.: Wood Alcohol Poisoning, J. A. M. A. **70**: 145 (Jan. 19) 1918.
11. Fenton, R. A.: Use of Dionin in Wood Alcohol Blindness, Northwest Med. **19**: 22 (Jan.) 1920.

After this the patient is given 3 gm. of sodium bicarbonate with a glass of water, three times a day, one hour before meals, until the symptoms have disappeared. A safe guide as to the dose is to keep the fresh urine alkaline to methyl red. Fluids are forced, and a liquid diet is given until the acute symptoms are over. Then the diet may be as varied as the patient wishes.

If the patient is comatose, or if the cyanosis is very marked, with respiration much depressed, it is well not to wash out the stomach at first. In this case, or if medication by mouth is not retained, 1,000 c.c. of Fischer's [12] sodium carbonate (0.37 per cent.) sodium chlorid (1.4 per cent.) solution at 99 F. is given slowly intravenously. *In case of any doubt, it has been our custom to give the intravenous injection.* No ill effects have been noted. If there is time and there seems to be congestion of the venous circulation from embarrassment of the right side of the heart, it may be well to draw off from 100 to 300 c.c. of blood before giving the intravenous injection. Half may be given at one time, and the other half later. It has usually not been necessary to give a second intravenous injection on succeeding days. A spinal puncture may be made if there is much restlessness and if there are signs of cerebral compression. After Fischer's solution there appears to be a dehydration of the nervous tissue, with increase in spinal fluid. The breathing usually improves rapidly, the mental state clears, and in from six to twelve hours the cyanosis has virtually disappeared. There is rapid improvement in the eye signs, the blurring of vision disappearing in from twelve to twenty-four hours, or sometimes a slightly longer period. The abdominal tenderness soon disappears.

It is well for the patient to remain in bed until the cyanosis has disappeared and the mental confusion has cleared. The bowels should be kept open with magnesium sulphate. The average stay in the hospital was about five days, with treatment for two or three days. It is well to have the patient return at intervals to note whether or not there has been any permanent damage. All our patients have had hæmatropin or atropin sulphate dropped into their eyes for ophthalmoscopic examination.

The tables show some of the symptoms and effects of alkalization as opposed to the method of stimulation only. The toxic symptoms are produced by widely different amounts in different individuals. The blurring of vision varied from inability to count fingers held about a foot in front of the eyes to inability to read ordinary newspaper print, but with enough light

TABLE 1.—EXAMPLES OF CASES TREATED BY ALKALIZATION

Case	Material Taken	Condition	Blurring of Vision	Treatment Begun (After Taking)	Treatment	Comment
E-4829	½ pint denatured alcohol (with methyl)	In coma; cyanotic; pupils dilated; blood deep chocolate color	+	4 to 10½ hours	1,000 c.c. Fischer's solution intravenously; later, gastric lavage; sodium bicarbonate, etc., by mouth	Improvement within 3 hours; after third day all symptoms had gone; recovered with no impairment of vision
E-4837	1 pint denatured alcohol (with methyl)	Semicomatose, cyanotic, "head felt numb"	+	Over 12 hours	Gastric lavage; magnesium sulphate; 900 c.c of Fischer's solution intravenously;. later, sodium bicarbonate, etc., by mouth	Rapid recovery with no impairment of vision; discharged after 5 days
E-4906	½ pint denatured alcohol (with methyl)	Recovered consciousness on reaching hospital; slight cyanosis; pupils dilated, nausea, headache	+	About 4 hours	Gastric lavage; magnesium sulphate; sodium bicarbonate, etc., by mouth	No symptoms remained after second day; recovered with no impairment of vision
E-678	1 pint of whisky; 4 ounces of bay rum	Conscious, "going blind," face flushed; abdominal pain; conjunctiva congested	+ Within 1 hour	2 to 3 hours	Gastric lavage; magnesium sulphate; enema; sodium bicarbonate and citrate, 40 grains of each, every hour, with 8 ounces of water	Complete clearing up of vision in three days
E-4963	Lemon extract, 24 oz.; 3 or 4 drinks of supposed "whisky" (with methyl alcohol)	Cyanosis; vomiting; headache; vertigo; conscious	+	4 to 5 hours	Gastric lavage; magnesium sulphate; 1,000 c.c. Fischer's solution intravenously; spinal puncture; later sodium bicarbonate, etc., by mouth	After 12 hours, vision was "as clear as before" the attack; complicating syphilis, chronic alcoholism, aortic dilatation; discharged with no bad effects
E-5165	1 ounce of supposed "whisky" (with methyl alcohol)	Felt weak; dizzy; stuporous; pain in abdomen; vomiting; slight cyanosis	+ Congestion of nasal halves of both disks	8 hours	Gastric lavage; magnesium sulphate; colonic flushing; 800 c.c. Fischer's solution intravenously; later sodium citrate and bicarbonate by mouth	Vision clear by third day; discharged recovered

TABLE 2.—CASES NOT RECEIVING ALKALIZATION

Case	Material Taken	Condition	Blurring of Vision	Treatment Begun (After Taking)	Treatment	Comment
D-4440	8 ounces of "wood alcohol"	Dyspnea, cyanosis, cough and rusty sputum in last 8 hours; tremors	?	About 20 hours	Gastric lavage; magnesium sulphate; later, sodium bromid, scopolamin, tr. digitalis, caffein sodium benzoate; atropin sulphate (each when indicated)	Developed pneumonia and died
E-4804	4 or 5 (?) ounces of clear solution containing wood alcohol	As in Case E-4829, marked respiratory depression with cyanosis; pupils dilated; unconscious	?	Not known; probably within 4 hours	Caffein sodium benzoate; epinephrin	Respiratory paralysis; patient died within ½ hour after reaching ward

12. Fischer, M. H.: Oedema and Nephritis, New York, Ed. 2, 1915, p. 549.

perception to count fingers. These conditions had cleared up entirely at the time of discharge.

SUMMARY AND CONCLUSIONS

1. Wood alcohol appears to vary in its toxicity to different individuals.

2. The symptoms are those of depression of the medulla and the cranial autonomic system and at times the sacral. There is usually a marked and early effect on vision.

3. There is a rapid disappearance of the symptoms (unless the anatomic injury is beyond repair) with intensive alkali therapy.

4. Many of the toxic symptoms probably accompany the acidosis, which may be associated with the acid production (formic) and with methemoglobinemia.

MERCUROCHROME-220

A CLINICAL AND LABORATORY REPORT ON ITS USE IN OPHTHALMOLOGY *

W. B. LANCASTER, M.D.

F. L. BURNETT, M.D.
BOSTON

AND

L. H. GAUS, M.D.
ALBANY, N. Y.

The preliminary report of experimental and clinical studies on mercurochrome-220 by Drs. Hugh H. Young and E. O. Swartz, the urologists, and Edwin C. White, Ph.D.,[1] the chemist, was of such unusual interest as to attract the attention even of the ophthalomologist.

The new synthetic compound is one of a large series produced in the laboratories of the Brady Urological Institute, in "the effort to obtain a really effective antiseptic for local use in the genito-urinary tract."

Chemically, the substance is a compound of fluorescein and mercury, the thought being to combine the penetrating quality of the dye with the germicidal quality of the metal, at the same time avoiding the irritating effect of the well known powerful mercury compounds in common use, such as the chlorid, iodid and cyanid salts.

The conclusions of these authors from their preliminary studies were that "1 per cent. solutions of mercurochrome-220 gave no evidence of irritating qualities when used in the conjunctival sac of rabbits." Microscopic examination of sections of the mucous membrane of the bladder and other parts of the genito-urinary tract which had been exposed for five minutes to a 1 per cent. solution of mercurochrome-220 in the living animal (rabbit) showed that the cytoplasm of the epithelial cells was stained, and the submucosa as well, though less uniformly; and in some places the dye penetrated even to the muscularis.

Tests of germicidal power were made in urine under careful precautions as to H-ion concentration, and were compared with similar tests of other well known antiseptics. In one minute 1:1,000 mercurochrome-220 kills *Staphylococcus aureus*, a result obtained with none of the other drugs even in one hour; 1:100 mercurochrome-220 kills *Staphylococcus aureus* almost instantaneously (not over ten seconds); 1:100 protargol failed to kill *Staphylococcus aureus* in one hour; 1:10 argyrol, however, killed in five minutes.

A series of cases of cystitis and pyelitis of long standing and refractory to other treatments were rapidly sterilized, so that the authors were able to say, "Now for the first time we feel that we have a method of quickly curing certain chronic infections of the bladder. . . . It has been demonstrated that the drug is of great value in the treatment of gonorrhoea." Also, "It has proved eminently satisfactory in the treatment of chancroids, and as a dressing for buboes after incision."

Only one test was reported of the activity of mercurochrome-200 in a serous fluid; 1:1,000 killed *Staphylococcus aureus* in hydrocele fluid in one hour. Comparative tests of other antiseptics in hydrocele fluid were not reported in this article.

It seemed to us that here was abundant evidence to warrant investigating mercurochrome-220 from the ophthalmic point of view. Without waiting to accumulate more complete data, as we should prefer to do, we present by special request the results of a few weeks' clinical observation and a number of laboratory tests.

In acute infections of the conjunctiva, a 1 per cent. or 2 per cent. solution of mercurochrome-220 was instilled from one to several drops at a time, from three to ten times a day. The secretion of mucus and pus was very rapidly diminished, often strikingly so. The same is true of many other drugs, however. It is our opinion that a more rapid reduction of discharge takes place under mercurochrome-220 than under zinc sulphate, boric acid, argyrol or mercuric chlorid, which are the drugs we most frequently employ.

It is particularly gratifying to see a conjunctivitis following an operation on the eyeball respond to mercurochrome-220. If on removing a dressing we find a notable amount of discharge, we use mercurochrome-220, 1 per cent., three times a day, and expect to find a marked improvement the following morning. The combined effect of the trauma of the operation and the bandage often sets up an increased discharge from the conjunctival sac; and this is more promptly and surely arrested by mercurochrome than by any other treatment we have tried.

In plastic operations in which skin grafts are used, it is not uncommon for an offensive odor to appear after a few days, showing the growth of saprophytic organisms; 1 per cent. mercurochrome-220 in small doses applied twice or three times a day will promptly stop the odor, not by its deodorizing but by its antiseptic action.

In ulcers, the drug shows by its staining quality that it penetrates the infiltrated zone.

Four cases of pneumococcus ulcer with hypopyon, in elderly patients, have been treated with mercurochrome-220:

CASE 1.—A farmer, aged 71, had been treated outside for traumatic ulcer of more than two weeks' duration. There were hypopyon, old iritic adhesions, and a large amount of pus in lacrimal sac. A smear showed the presence of pneumococcus. The ulcer had been treated with tincture of iodin, tetraiodophenolphthalein ointment, and other drugs. January 18, the lacrimal sac was opened freely through the anterior wall; it was irrigated, filled with mercurochrome, 2 per cent., lightly packed with iodoform gauze, and the

* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220," J. A. M. A. **73**: 1483 (Nov. 15) 1919.

canaliculi were ligatured: the ulcer was freely cauterized with the actual cautery, but without paracentesis. Mercurochrome, 2 per cent., was used every two hours, and hot applications, tetraiodophenolphthalein ointment and atropin, three times a day. No infiltrated area appeared at any part of the margin of the ulcer after this treatment was begun. Recovery was uninterrupted except by a small keratocele.

CASE 2.—A man, aged 78, had been treated four weeks for a traumatic ulcer, which was steadily growing worse; there was history of lacrimal obstruction. January 27, the ulcer was cauterized with the actual cautery; 2 per cent. mercurochrome, atropin, tetraiodophenolphthalein powder and hot applications were used, each three times a day. This retarded the progress of the ulcer, but did not arrest it. February 7, it was cauterized again, and mercurochrome, 1 per cent., was used every two hours when the patient was awake. In spite of repeated cauterization and paracentesis, the ulcer steadily progressed, and the eye was enucleated, February 17.

CASE 3.—A laborer, aged 68, had a traumatic ulcer with hypopyon. There was no lacrimal obstruction. Tetraiodophenolphthalein ointment had been tried, also atropin, hot applications and a bandage. He was slowly growing worse. February 19, 95 per cent. phenol (carbolic acid) was used, followed by alcohol. February 23, the actual cautery was applied freely, with perforation; mercurochrome, 1 per cent., was used every hour during the day, and three times during the night. There was no recurrence of infiltration of the cornea after this treatment was begun. March 1, mercurochrome-220, 2 per cent., ointment was used every four hours. March 3, the patient was doing well.

CASE 4.—A patient between 50 and 60 years of age, not in good physical condition, had a pneumococcus ulcer, complicating pemphigus. The pemphigus had advanced to a stage at which about one half of the conjunctival sac had been obliterated, before the ulcer appeared. The pemphigus was in a state of arrest following treatment with arsenic. The ulcer began early in January; it was treated with tincture of iodin, the actual cautery, mercurochrome, 2 per cent., repeated applications of iodin, 95 per cent. phenol and alcohol, tetraiodophenolphthalein ointment, and ethylhydrocuprein (optochin); repeated paracentesis was done both by the knife and by the cautery. No satisfactory results were obtained until after a vaccine of Types I, II and III pneumococcus had been given in three doses: thereafter under mercurochrome, ethylhydrocuprein and atropin, the patient made a steady recovery.

Prompt use of the actual cautery, destroying all infiltrated tissue, with or without perforation according to circumstances (but perforating if in doubt), followed by mercurochrome, 2 per cent., every hour while the patient is awake and three times at night, the eye being kept bandaged between treatments, preferably with a Liebreich tie-bandage, and with hot applications several times a day, seems to offer the best local treatment. Mercurochrome is very much more penetrating than optochin, if one may judge from appearances.

We feared that mercurochrome, 1 or 2 per cent., might prove so detrimental to the tissue cells as to retard reparative activity, and therefore did not use it as freely as we might have done in the early cases. This fear seems not to have been well grounded, and we no longer hesitate to use mercurochrome freely. We expect to report some laboratory tests on this point.

CASES ILLUSTRATIVE OF CONJUNCTIVITIS

CASE 5.—M. S., with acute conjunctivitis and blepharitis yielding a gram-positive diplococcus, was treated from January 15 to January 20 with mercurochrome, 2 per cent., which treatment was followed by recovery.

CASE 6.—M. B., aged 7 months, was treated with mercurochrome, 1 per cent., for acute conjunctivitis from which the smear showed pneumococcus. Two days later, the child was much improved; smear still yielded a gram-positive diplococcus. The patient did not return.

CASE 7.—Baby Ross, born, January 17, before the arrival of the physician, had the eyes instilled with argyrol when he came. Next day there was considerable chemosis and purulent discharge from the left eye; there were many pus cells but no organisms; the culture was negative because contaminated. Mercurochrome, 1 per cent., was used every two hours. January 21, there was still chemosis. January 26, 27 and 28, smears were negative. January 29, the patient was discharged, with the eyes white, and no discharge or swelling.

CASE 8.—J. S., January 30, had acute conjunctivitis and dermatitis of the lid, of one week's duration. There was chemosis, marked swelling of the lids and a purulent discharge; a smear was negative. Mercurochrome, 2 per cent., was used every two hours, and White's ointment[1] at night. February 4, the patient was very much improved; mercurochrome, 2 per cent., was used every four hours. February 9, the patient was discharged, well.

GONORRHEAL OPHTHALMIA NEONATORUM

A majority of all cases of ophthalmia neonatorum occurring in Boston and vicinity are treated in the special ward of the Massachusetts Charitable Eye and Ear Infirmary. It is a striking commentary on the effectiveness of the agitation which has been carried on against this disease that it has so far diminished in frequency in this vicinity that we have not had sufficient material to carry on a study of the action of mercurochrome-220 in this disease within the few weeks at our disposal.

FORTY-TWO CASES OF OPHTHALMIA NEONATORUM FROM THE RECORDS OF THE MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY SHOWING THE RESULTS OF DIFFERENT METHODS OF TREATMENT COMPARED ON THE BASIS OF DURATION OF STAY IN HOSPITAL

No. of Cases	Gonococcal Cases	Average Duration of Stay Weeks	Shortest No.	Shortest Weeks	Longest No.	Longest Weeks
153	Argyrol, 25 per cent.	4	10	2	6	12
15	Protargol, 20 per cent.	3½	1	1	3	6
10	Silver nucleinate.	3½	1	2	1	8
178	All well treated cases except mercurochrome.	3.9				
20	Zinc sulphate*	5	1	1	4	8 to 16
8	Dichloramin-T.	7	1	1	4	7 to 12
22	Zinc and potassium iodid†	5				
Total 228	All except mercurochrome	4¼				
15	Mercurochrome-220, 2 per cent.	3½	1	1	4	4 to 9
	Nongonococcal Cases					
123	Argyrol, 25 per cent.	3	9	1	12	6 to 10
20	Protargol, 10 per cent.	3	7	1	4	13 to 16
10	Zinc sulphate*	4				
25	Zinc and potassium iodid†	2				
Total 178	All except mercurochrome	2.9				
6	Mercurochrome, 2 per cent.	2	1	1	1	3

* One-tenth per cent. dissolved in 2 per cent. solution of boric acid.
† Zinc sulphate, 0.16 per cent. potassium iodid, 11 per cent. in water.

The treatment has consisted in 10 per cent. mercurochrome for two applications, and after that 5 per cent. applied every two hours.

No case of corneal involvement occurred under this treatment; but we do not expect corneal involvement to occur under any modern treatment.

The accompanying table was made from 427 selected cases from the records of the Massachusetts Charitable Eye and Ear Infirmary. No cases were selected that were complicated by any diseases that might pro-

1. A petrolatum ointment of mercuric chlorid and sodium chlorid usually employed in a strength of from 1: 3,000 to 1: 5,000.

long the stay of the patient in the infirmary, such as otitis, bronchitis and eczema. Cases treated for a period longer than one week before the patient entered the infirmary were also discarded. The length of time a patient was under treatment was computed from the time the patient entered the hospital until the patient was clinically well and therefore free from discharge, and three consecutive negative smears were obtained. In practically all cases reported the patients received two-hourly treatments, that is, the different drugs were used in the same way by the same or similar personnel.

It appears from this table that we are justified in concluding, even though the number of cases is not large, that ophthalmia neonatorum is favorably influenced by suitable treatment. That it *does* make a difference what drug is used. That simply washing out the eyes with a bland, weak solution like 0.1 per cent. zinc sulphate is not as effective as using a real germicide. Thus, with twenty cases treated with zinc sulphate, the stay in the hospital was five weeks; with fifteen cases treated with mercurochrome, the stay was 3⅓ weeks.

What may fairly be expected of germicides in the conjunctival sac? We have drugs which will kill organisms promptly if brought in contact with them in suitable concentration for a long enough time. Thus, if a baby at birth has a copious infected vaginal discharge applied to the eyes, prompt washing of the baby's face and instillation of 2 per cent. silver nitrate will kill all the micro-organisms, so that no gonococci will grow in the conjunctival sac. If we delay a few hours before applying the germicide, the result is no longer sure. Some of the micro-organisms may by this time have penetrated to such places (that is, into ducts of glands or between cells into the subepithelial space) that the germicide cannot reach and kill them. After this has happened, our chief reliance must be on the patient's own defensive warfare on the organisms —the development of immunity. Witness the markedly greater resistance of babies to gonococcal conjunctivitis than adults show. Babies have been made more or less immune in utero by absorbing antibodies from the mother.

We believe that no drug will be discovered which will promptly sterilize the conjunctiva both superficially and in the protected recesses: we must look for prompter cure by obtaining greater and earlier immunity, probably through vaccines and serums.

The experience of the Indian operators and of others in the use in the conjunctival sac of mercuric chlorid, 1:2,000 or 1:3,000, is another excellent example of a germicide which effectually renders inert all the micro-organisms liable to occur in the conjunctival sac, provided it reaches them. As a matter of fact, there are usually a good many micro-organisms which have penetrated to such protected places that the germicide does not reach them, and after a few hours they will usually make their way into the conjunctival sac. But during the interval, while there are none free in the sac in an active condition, it is possible to perform an operation, such as cataract extraction, and allow time for the wound to become closed and protected from infection. Browning has pointed out that if one is taking cultures from the conjunctival sac for the purpose of determining before operation whether dangerous micro-organisms are present, he is liable to get misleading negative results if he takes his culture within a few hours after the application of a solution of mercuric chlorid.

One of us has used 2 per cent. mercurochrome applied freely (about five drops) in the conjunctival sac, from five to ten minutes before cataract and other operations for its antiseptic effect. It would seem to be well fitted for such use if its properties are what we believe them to be, namely, a nonirritating germicide which is effective even in the presence of serum, which does not require many minutes to manifest its germicidal activity (as is the case with many other antiseptics used for this purpose), and which will penetrate into the mucous membrane to an unusual degree.

In making a report of clinical observations, it is the personal judgment on which we must rely. It is not possible to portray the cases in such a way that the reader can form his own independent judgment of the action of the remedy; he must watch the cases from day to day himself. The conflict of views on the subject of the organic silver salts is a case in point. The consensus of clinical opinion favors the view that argyrol, for example, is a useful antiseptic to employ in the conjunctival sac. This statement will not pass unchallenged even today, and was most hotly discussed a few years ago. It is probable that there will be a conflict of opinion about mercurochrome-220, and the true decision can be reached only by the combined experience of a considerable number of clinicians.

LABORATORY TESTS

The original report of Dr. Young and his collaborators contained a good many data on the behavior of *Staphylococcus aureus* and other bacteria when acted on by mercurochrome-220 in urine. This medium was well chosen for the urologist. The ophthalmologist wishes to know how the antiseptic affects micro-organisms in the presence of serum, pus and mucus, and also in the presence of tears.

"The testing of substances for their antiseptic and germicidal power is fraught with innumerable pitfalls."

"The capacity of a disinfectant to kill micro-organisms is dependent to an extraordinary degree on the conditions under which it acts. The presence of proteins, etc., unsually causes a huge reduction in germicidal activity. In the presence of pus, in which many of the organisms are ingested in the bodies of dead leukocytes and hence are difficult of attack, the results are still less favorable. The relative mass of antiseptic and of substance being tested, the H-ion concentration, the temperature, and the number of micro-organisms are more or less important factors." [2]

We used mercurochrome-220 at first, but after mercurochrome-220 soluble was placed on the market, we used the soluble salt.

We made some tests in physiologic sodium chlorid solution and some in Ringer's solution as being similar to tears. We made other tests in hydrocele fluid to show the effect of serum on the germicidal power of the drugs being tested.

The most significant of our tests are the following:

1. With mercurochrome-220 in Ringer's solution, 0.1 per cent. resulted in no growth after six to ten minutes; 0.01 per cent resulted in no growth after thirty to sixty minutes. These results compare with 0.1 per cent. giving no growth in one minute, as reported by Drs. Young, White and Swartz, testing in urine.

Probably the explanation is to be found in differences in technic. Most of our tests were made in the following way:

2. Dakin and Dunham: Handbook of Antiseptics, p. 77.

A suspension of *Staphylococcus aureus* in the solution to be tested was first made, containing about 100,000,000 per cubic centimeter. A solution of the mercurochrome of double the strength to be tested was also prepared. Both were kept at 37.5 C. By adding 1 c.c. of the suspension to 1 c.c. of the mercurochrome-220 solution, double strength, a mixture was obtained of the proper mercurochrome strength. Cultures were taken from this with a large platinum loop at the suitable intervals. The loopful of the mixture was not transferred direct to the agar slant, since in so doing an appreciable quantity of the antiseptic would be carried over to the agar, and inhibit the growth of the culture. Instead, the loopful was added to 2 c.c. or more of sterile water, and well mixed. Then a freshly sterilized platinum loop was used to transfer a sample of this to the agar slant. Thus the antiseptic was so attenuated as to have no inhibitory effect that need be considered. A better way would be to use an antidote, as is done with silver nitrate or mercuric chlorid; but we knew no antidote for mercurochrome, and so used the method of high dilution.

2. Dr. Young found 0.1 per cent. mercurochrome in serum effective in killing *Staphylococcus aureus* in one hour. We found growth after one hour, and to produce no growth had to use 1 per cent. mercurochrome in serum acting one hour at 37.5 C. Two per cent. mercurochrome in serum at 37.5 C. killed in thirty minutes in all cases, but in some cases in six minutes, and again in fifteen minutes all but one colony. Five per cent. killed in all cases in ten minutes, in some in three minutes, and again in two minutes. It was interesting to note that when the loopful of mixture of serum and *Staphylococcus aureus* and mercurochrome was transferred directly to the agar and rubbed over the surface, avoiding the water of condensation, no growth would occur on the surface, except perhaps at the bottom where it was evident that the water of condensation had washed off the excess of mercurochrome, and so allowed the staphylococcus to grow. This shows the importance of adopting a technic that will eliminate this pitfall.

In some of our experiments we followed a more elaborate technic, designed by Dr. Burnett to show the percentage of organisms killed in each sample per unit of time. A suspension of *Staphylococcus aureaus* in distilled water was prepared by use of the centrifuge and suitable dilution which contained 100,000,000 organisms per cubic centimeter. This was determined by plating a millionth of a cubic centimeter (measured by diluting 1:1,000 and again 1:1,000 when 1 c.c. plated should show 100 colonies). This standardized suspension containing 100,000,000 organisms per cubic centimeter was made use of in the following way:

One-tenth c.c. was added to 9.9 of hydrocele fluid, giving 1,000,000 per cubic centimeter. One c.c. of this was added to 1 c.c. of mercurochrome solution of double the strength to be tested, giving 500,000 per cubic centimeter. At suitable intervals, 0.1 c.c. was mixed with 50 c.c. of water, to attenuate the mercurochrome, giving 1,000 per cubic centimeter. One-tenth c.c. of this was added to the melted agar and poured into a Petri dish, which should show on incubation approximately 100 colonies. Controls were made, using sterile water in place of mercurochrome, to determine how near to 100 colonies should be expected in each cubic centimeter. Naturally, the variations would be considerable. For example, three controls in one experiment showed 121, 119 and 124 colonies per cubic centimeter. This indicated that the original suspension was stronger than was intended, more than 100,000,000 per cubic centimeter, but that does not affect the resulting *rate of decrease*. In this particular experiment, 5 per cent. mercurochrome was being tested, and the colonies obtained were, after one-half minute, 1; one minute, 0; two minutes, 0, etc.

This method differs from that of Dakin and Dunham[2] in that they made no attempt to secure a suspension that would contain approximately the same number of organisms per cubic centimeter in every case. In other words, they did not attempt to standardize the concentration of the suspension of organisms used. Of course, the more elaborate the technic the more chances there are for contamination. On this account we did not employe this method in most of our tests.

We wish to say that we have tried to avoid the pitfall pointed out by Jackson when discussing the silver salts fifteen years ago, namely, "the lively expectation of important results which is a cause of such exaggerated estimates of the therapeutic value of new remedies."

ABSTRACT OF DISCUSSION

Dr. J. Herbert Claiborne, New York: I have never found anything so good as nitrate of silver to destroy microbes, especially gonococci. I have been able to stop gonorrheal conjunctivitis in the adult within from twenty-four to thirty-six hours after infection.

Dr. George S. Derby, Boston: We occasionally have cases which clear up in a week but they are generally cases in which a full bacteriologic examination has not been carried out. A diagnosis of gonorrheal ophthalmia cannot be made by the smears alone; in order to rule out the other gram-negative intracellular organisms it is necessary that cultures be taken. *Micrococcus catarrhalis* grows easily on blood serum, while it is exceedingly hard to cultivate gonococci on anything but serum-agar plates. There is a question in my mind whether these cases which clear up so quickly, like those which Dr. Claiborne has reported, might not be cases in which the organism was *M. catarrhalis* or some other organism of that type, and not the gonococcus.

Dr. Hiram Woods, Baltimore: I do not know how with the present state of prophylaxis for ophthalmia neonatorum and the very general adoption of the Credé method, any one man gets 500 cases of ophthalmia neonatorum. I have not seen fifty cases in the last six or eight years. The obstetricians of Baltimore use the Credé method systematically; the health authorities are insisting on its use.

Dr. Benjamin F. Travis, Chattanooga, Tenn.: I was very much impressed with Dr. Young's observations on the germicidal effect of mercurochrome on the gonococcus, and wondered if it might not kill the streptococcus just as easily. I experimented on few cases, using a 2.5 per cent. solution of the drug, and found that it is as effective against the streptococcus as against the gonococcus.

Dr. Walter B. Lancaster, Boston: In regard to Dr. Derby's suggestion that we cannot make a diagnosis from the smears alone: If we make no positive diagnosis without a positive culture we shall be even more often led astray. It is very difficult to get the organism to grow, hence, a negative culture is not to be relied on. If all negative cultures (negative to repeated trials, I mean) were classed as nongonorrheal, there would be many errors in diagnosis. In the case of ophthalmia neonatorum a very valuable guide is the condition of the mother. If the mother is definitely infected, if we find the gonococcus in the child's eye by the smear, and if there is a copious purulent discharge and swollen lids, we can be reasonably sure that it is a gonorrheal ophthalmia, even

though the patient is well in a week. I admit, of course, that there is a possibility of error. In reply to Dr. Woods, my chief complaint was lack of enough cases of gonorrheal ophthalmia for a thorough trial of this remedy. There were only fifteen. We listed all we had in the last four months that were suitable cases. To secure the 500 cases we had to search the records as far back as six or eight years. Twenty years ago we should have had no trouble in getting twice as many cases in four months. I am delighted with what Dr. Travis told us. I want many of you to try mercurochrone and give us the clinical results. It is the clinical results, not the laboratory results that will eventually settle whether it is of value; but one man's clinical experience will by no means do that.

SYMPATHETIC OPHTHALMIA

REPORT OF FOUR CASES IN WHICH THE CONDITION WAS TREATED WITH LARGE DOSES OF SODIUM SALICYLATE *

HERBERT MOULTON, M.D.
FORT SMITH, ARK.

Fortunately, my experience in the treatment of sympathetic ophthalmia has been limited to four cases and to the later years of my practice. The essential point in the study of these cases relates to the value of sodium salicylate as a remedy.

The experience of Gifford [1] is largely responsible for the introduction of sodium salicylate in the treatment of this disease. In a subsequent article, Gifford [2] attempts to explain its action on the theory of local depletion caused by general capillary dilatation. It may be, however, that the well known theory of Elschnig,[3] supported by Knapp [4] and others, will lead to the establishment of a more rational basis on which the action of the remedy may be explained.

Elschnig holds that in order for sympathizing inflammation to develop, there must be an anaphylaxis and a preexisting general disease or an autointoxication. It may be that the salicylate in the tissues counteracts the effect of toxins or inhibits the production of toxins or other bodies which are responsible for the development of the type of uveitis which we designate as sympathizing. Gifford himself has proved that the drug cannot act in the body as a bactericide.

The first patient was under my care only in part.

CASE 1.—A. B., boy, aged 13 years, came, April 20, 1907. A paper wad had been shot into his right eye at close range from a 0.22 pistol, perforating the sclera near the ciliary region. The eye was so badly injured that enucleation was advised and the parents were warned of the danger to the other eye. Operation was declined, and the boy taken to his home some 80 miles away where a local physician undertook to save the eye. A month later inflammation appeared in the other eye. The boy was taken to Dr. F. C. Harrish in Chicago, who immediately enucleated the injured eye and placed the patient on atropin and large doses of sodium salicylate. At the time of the operation, the sympathizing (left) eye was "blind," but in two or three months useful vision was restored. The dosage of sodium salicylate was at first 150 grains a day for five days, with a rest of two days, when the dosage was repeated. This was kept up with lessened dosage and longer intervals between, until the end of the period.

The boy returned to me, Dec. 21, 1911, four years later, saying that for a few days there had been increasing dimness of vision. I found the eye red and inflamed and sensitive to light. There was ciliary injection. There were numerous permanent brownish spots in the substantia propria of the cornea, with a special massing horizontally across the pupil. In addition, there were fresh looking deposits on Descemet's membrane. The pupil was about 4 mm. in diameter and fixed. There was nearly total flat adhesion of the iris to the lens, and slight fresh exudate at the pupil margin. Atropin had no effect. The lens capsule was hazy at the pupil margin. The center of the lens was quite clear. The fundus reflex was seen, but no details. Vision was 20/100. Field was normal. There was normal intra-ocular tension. This was evidently a picture of old plastic sympathetic iridocyclitis with a relapse. Atropin and a calomel purge were ordered. The young man weighed now 180 pounds. Twenty grains of sodium salicylate were ordered every hour and a half till nine doses were taken. This was repeated every day for five days. The patient was kept in bed each day while taking the medicine for the first few days, but after that, as no marked depression occurred, he was merely ordered to keep his room. Free diaphoresis was produced each day. Three courses of this dosage of five days each with a two day interval were given; then the dosage was dropped to 100 grains a day for the same periods and with the same intervals between.

Gifford recommends 1 grain of the salicylate for each pound of body weight of the patient to be taken in the course of from ten to fourteen hours. This is the rule I have always followed. It is surprising how well this dosage is borne. After the first round of five days with this patient taking 180 grains a day, the local symptoms were ameliorated. The deposits on Descemet's membrane and in the pupil were lessened and vision had improved from 20/100 to 20/80, December 26. January 6, eleven days later, vision was 20/50. January 31, it was up to 20/30. All redness and photophobia had disappeared. The deposits on Descemet's membrane had melted away, but the opacities in the substantia propria and the adhesions of the iris remained, and are there to this day.

During the past eight years there have been three relapses of the kind described which have subsided under the same treatment. Excepting for these attacks, the eye is not painful. Vision remains around 20/30, and the patient makes a living running a confectionary store.

After the first attack it was found that the patient had a chronic suppurative inflammation of the left antrum—the same side as the eye. Cure of this by a large opening made into the antrum from the nose and irrigation did not, however, prevent the relapses. Each relapse has been lighter and with longer intervals between. At no time during my observation of this case has there been any variation in the tension of the eye. The field remains normal. There is no doubt in my mind that these attacks are relapses of iridocyclitis, although I know of no way to prove that they are due to the original exciting cause of the first attack. However, one prominent fact stands out: with the administration of very large doses of salicylate, the symptoms subside and remain absent for long periods of time.

CASE 2.—J. Y. B., man, aged 58, had absolute glaucoma of the left eye. The media were clear. The disk was deeply cupped. The tonometer reading was 50 mg. of mercury. Vision was 0. The right eye was apparently normal, vision 20/20. Dr. A. E. Prince of Springfield, Ill., who was in my city at the time, performed his operation of inserting his so-called mule shoe drain in the patient's blind eye, Oct. 2, 1916. This drain was removed two weeks later. At the time the drain was removed and subsequently, the eye was red and there was exudate in the anterior chamber. December 11, the eye was enucleated. At this time the right eye was normal. January 16, the patient returned. The remaining (right) eye was white and quiet, the pupil normal with vision 20/20, but fine opacities were made out on Descemet's membrane. June 22, five months later, deposits on Descemet's membrane were gone, but some pigment deposits were seen on the anterior capsule of the lens. Pupil, 3 mm., reacted to light.

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* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Gifford: Tr. Sect. Ophth. A. M. A., 1899.
2. Gifford: Oph. Rec., December, 1902, p. 632.
3. Elschnig: Ophth. Rec., November, 1911.
4. Knapp, Arnold: The Autotoxic Factor in Sympathetic Ophthalmia, Tr. Sect. Ophth. A. M. A., 1919, p. 242.

The eye was white and quiet. Vision was 20/30. From this on there were increasing evidences of uveitis, and the vision steadily failed. July 21, vision was 20/40; August 22, 20/50; October 20, 20/200. The eye was noticed for the first time as being red. The pupil was largely filled by exudate, but dilated well to homatropin. Mydriatics had not been used until this time for fear of exciting hypertension; but twelve hours after the homatropin was instilled once, tension was still normal. Tension was 20 mg. of mercury by the tonometer, but November 3, the tonometer showed 50 mg. of mercury. This soon fell. In April, 1918, the eye was quite blind, with the pupil blocked with exudate and the tension of the eye minus.

I have introduced this case because, first, evidently at the beginning of the sympathizing symptoms many observers would have classed it as a case of sympathetic *serous* iridocyclitis, which runs a mild course and usually clears up, and which some authors assert never passes over into the malignant plastic form. These authors imply that reported cures apply only to the former type, while the latter are practically incurable. In this case, for six months after the first deposits were noted on Descemet's membrane there were no symptoms of plastic inflammation whatever. I think this case proves that a "serous" sympathetic uveitis can pass over into the plastic form, or at least that it should never be taken for granted that a case may terminate favorably, even if at first the symptoms seem to be of the mild type.

I also report this case principally because it was *not* treated with large doses of sodium salicylate. I have always felt that if it had been, the result might have been different. The treatment consisted principally of mercury and iodids and some small doses of salicylate. The patient came only at intervals, and could not be induced to enter a hospital. He lived remote from any physician to whom the treatment could have been entrusted.

CASE 3.—Mr. H., aged 22, a steam fitter, who came, April 23, 1918, had been close to a steam pipe that burst, April 19, the steam and a piece of the pipe injuring his left eye and eyelids extensively. There was an infected wound of the cornea which passed on to panophthalmitis. Evisceration of the purulent contents of the globe was performed, May 11. All the cornea and rim of the sclera with all the uvea were thoroughly removed, and the scleral cavity was wiped out with pure phenol (carbolic acid) neutralized by alcohol.

This was three weeks following the injury. On the 26th, or nearly a month after the evisceration, the patient returned complaining of dim vision and photophobia in the remaining eye. The eye was slightly congested. There were deposits on Descemet's membrane and the anterior capsule of the lens. The iris was retracted slightly at the base. Pupil, 4.5 mm., reacted slightly to light, but dilated fully to atropin. The fundus was normal. Vision had fallen from normal to 20/60, improved somewhat by minus lenses. There was impairment of accommodation. The eviscerated stump was promptly dissected out.

The patient weighed 140 pounds, so 140 grains of sodium salicylate were given daily. Seven doses of 20 grains each were given an hour and a half apart, and the patient was kept in bed. Improvement began in forty-eight hours. In a month the eye was normal with 20/20 vision, and so remains. Three rounds of five days each of the full doses were given. There was some depression, perspiration, and suffusion of the skin. No treatment for the depression except rest in bed was required, although stimulants were kept in readiness.

Although the books usually state that sympathy does not follow panophthalmitis, Würdemann[5] records a case and refers to three others which he found in the literature. I think there can be no doubt that this was another of these rare cases. In clinical behavior and appearance it was identical with the one preceding, as regards the early symptoms. The one passed over into the plastic form and blindness, the other did not. Was the bad result due to the lack of salicylates? Was the good result due to their use?

CASE 4.—James P., aged 4 years, brought to me, May 30, 1918, had been injured in the right eye, two months before, by a stick of wood. There was a depressed scar extending from the center of the pupil down and out through the cornea and into the sclera. The iris was adherent to the scar and to the lens. The pupil was closed. The eye was red and sensitive to touch, and soft. Vision was 0. The left eye had been involved one week, and was red with photophobia. The iris was muddy, with flat adhesions to the lens. The pupil, 4.5 mm., yielded but slightly to atropin at one point, upward. The vision equaled fingers at 3 feet.

The injured eye was removed at once. The patient, who weighed 40 pounds, was given 40 grains of sodium salicylate daily in the usual way. After the first two days he did not go to bed while taking the remedy. In two weeks the eye was white and quiet, and vision had improved. The process was apparently completely checked.

The treatment was kept up intermittently at the boy's home by his family physician. There has been no relapse. The flat adhesions of the iris remain, but there is a fairly clear pupil. Vision in March of this year was ascertained to be 20/30.

This was certainly a case of the severe plastic type of sympathetic inflammation. Its cure can hardly be accounted for in any other way, I think, than by the use of heroic doses of the salicylates. In all three of the cases in which the salicylate treatment of Gifford was used, the patients were benefited or cured. The one in which it was not used pursued the usual sad course, ending in blindness. I think this is the important lesson to be learned from a study of these four cases. I am surprised in reading the journals that so few oculists resort to this treatment, and trust that the knowledge of its value may soon become more generally acknowledged.

205 Halliwell Building.

5. Würdemann: Ophth. Rec., November, 1905, p. 528.

ABSTRACT OF DISCUSSION

DR. JAMES M. PATTON, Omaha: I have observed between twenty-five and thirty cases of sympathetic ophthalmia. If these had arisen in our own practice, it would indicate negligence in the management of traumatized eyes, but fully 90 per cent. came with the sympathetic condition well advanced. Twelve per cent. of the cases were secondary to some form of operative treatment. In all these cases, heavy salicylate medication formed the basis of treatment. There has been considerable speculation as to just how the salicylate operates in these cases. Since the publication of Gifford's clinical reports in 1899, a number of theories have been advanced by laboratory men. Fillippi, in 1900, found on administering sodium salicylate in cases of acute arthritis an increase of salicylic acid in the inflamed joints and concluded that the acid was released in the presence of local inflammations. Dennis, in 1915, found that the salicylate produced an increase of uric acid elimination and was of the opinion that it also produced an increase in the elimination of other toxic products. But we are most interested in the clinical findings, and experience shows that large doses of salicylate do produce beneficial results in these cases. As to the method of administration: although the rule of 1 grain per pound of body weight in twenty-four hours is usually sufficient, in some of the very severe cases, we have found it worth while to exceed that amount, prescribing the salicylate in brandy, or some other alcoholic of about the same strength, in the ratio of 1 ounce of salicylate to 4 ounces of brandy and then giving

2 drams of the solution (30 grains of salicylate) to the dose in half a glass of hot water. If brandy or whisky is not available, a sufficient amount of alcohol may be added to secure sufficient stimulation. If the patient becomes nauseated and unable to retain the salicylate by mouth, we frequently give it by rectum. A cleansing enema may be first administered, and then from 45 to 60 grains of salicylate in half a pint of warm water is placed in the lower bowel. The patient is urged to retain this as long as possible. The results in these cases have been very gratifying. Some men are very insistent on administering double the amount of sodium bicarbonate with the salicylate. We have not observed any special benefits from the use of the sodium, and as it is claimed by some that the sodium increases the elimination of the salicylate through the kidneys, it may even interfere with the result desired. Some progress has been made along the line of intravenous administration of salicylate. We have had no experience along this line. In addition to the employment of salicylate, we have, at times, used it with benefit in these cases to produce sweating, giving the patient 45 grains of salicylate in a glassful of hot water, after which he is packed in blankets with hot water bottles at each side and allowed to remain so for one hour. This procedure is especially useful in the latter stages of the disease and may be continued every second or third day for two or three weeks. Aside from the nausea produced by the salicylate we must also consider the reaction on the mental condition in administering large doses. This is true not only in the treatment of cases of sympathetic ophthalmia but in other forms of uveitis where this drug is indicated. In the rather rare cases where delirium has occurred, it has been our custom to discontinue the salicylate and give an equal amount of cinchophen (atophan). As a rule, mental symptoms disappear in a few days and we have never seen harmful after-effects. The objection has been raised that large doses of salicylate may produce an albuminuria. This has happened a few times in our experience but has always cleared up promptly. I have never heard of a permanent nephritis resulting from salicylate medication. I wish especially to emphasize employing large doses of salicylate at the earliest possible suspicion of this trouble, as the time element is of the utmost importance and much valuable sight may be lost while waiting to make a positive diagnosis. Of course, the salicylate must be combined with such other therapeutic measures as have been found helpful.

DR. JOHN A. DONOVAN, Butte, Mont.: Having given these large doses for many years, I have concluded that we get just as good an effect with 100 grains daily as with twice that amount. I seldom have patients take the salicylate more than three days. I have had very beneficial effects from the use of mercury. Therefore, when I have a well marked case, I immediately give a subconjunctival injection of 15 minims of 1:1,000 mercuric cyanid combined with morphin and acoin, and I also push mercuric chlorid internally. Begin with 1/12 grain, and increase to 1/4 grain, three times a day; combine that with the salicylate. The salicylate is necessary to start with, but you can keep up the mercury. It is very beneficial.

DR. FREDERICK FRISCH, Atlantic City, N. J.: Salicylates should be given in all cases liable to be followed by sympathetic inflammation. We have enucleated fewer eyes in Atlantic City since we have made it a rule to give the salicylates in prophylactic doses immediately after the injury. However, on account of the infrequency of sympathetic inflammation, the value of salicylates or any other remedy can be estimated properly only after having been universally employed as a prophylactic, e. g., like quinin or antitoxins where malaria, diphtheria, tetanus, etc., are likely to occur, not waiting for symptoms to make their appearance.

DR. HUGH M. LOKEY, Atlanta, Ga.: There is one thing to be considered in giving the salicylates, and that is getting true salicylate, not the synthetic salicylate, which is a coal tar derivative. Salicylate made from oil of wintergreen (gaultheria) is very much less irritating when given by the stomach, and much less depressing. When the stomach does not tolerate salicylate, a very excellent way to give it is by the rectum. An enema of sodium bicarbonate is given, and this is expelled; then, give a 4 ounce solution of the salicylate, from 40 to 60 grains incorporated, with a long tipped rectal syringe, the patient lying on the abdomen. The sodium salicylate solution is injected slowly, the patient lying flat on the abdomen until it is absorbed. No irritating symptoms are produced.

DR. HERBERT MOULTON, Fort Smith, Ark.: Concerning Case 2 in my report, I received from Dr. T. M. Verhoeff of Boston, who examined the enucleated eye for me, a letter which seems to establish histologically the sympathogenic nature of the inflammation in the first eye. He stated that the eye shows injury to the lens, and cortical matter extruded into the operative wound. The iris is compressed against the cornea, while between the iris and lens there is a thick layer of exudate which is undergoing necrosis. The ciliary body is markedly infiltrated with chronic inflammatory cells and its surface is coated with a thick chronic inflammatory exudate. In this exudate there are a few small foci of epithelioid cells which are so merged with the general infiltration as to be inconspicuous. The choroid is normal. The histologic picture is practically identical with that seen in eyes in which the lens has been injured as the result of glaucoma operations. Dr. Verhoeff is convinced that the second eye in my case is affected with sympathetic uveitis, and that the small inconspicuous foci of epitheloid cells which he saw but regarded as part of the reaction toward the cortical matter, no doubt were really sympathogenic in nature. In other words, the marked reaction due to the cortical matter so masked the sympathogenic lesions that it was impossible to make a diagnosis of sympathetic uveitis until this had actually become clinically evident in the other eye.

APPENDICITIS CAUSED BY ENDAMEBA HISTOLYTICA

WITH POSTOPERATIVE AMEBIC ULCER PERFORATION OF CECUM *

E. P. HOGAN, A.M., M.D.
BIRMINGHAM, ALA.

The death of a patient following an appendectomy should certainly cause the surgeon who operated to exhaust every possible means to explain the cause of the death. The consensus is that there should be no mortality in simple appendectomies. Even in cases of peritonitis of appendical origin, in the hands of experienced operators apparently hopeless cases end in recovery. An uneventful recovery was expected in the case reported in this paper. The patient did well for five days following the operation, after which repeated intestinal hemorrhages developed, followed by peritonitis and finally by death on the seventh day. We were fortunate in securing a necropsy, which was held by Dr. George S. Graham, now of the City Hospital, Albany, N. Y., who was at that time professor of pathology of the Graduate School of Medicine of the University of Alabama. The clinical history and pathologic findings in this case show the insidious and destructive work of *Endameba histolytica*.

In a review of the literature, I find that very little information is given on amebic infections in which the appendix is involved.

Musgrave [1] has published an account of fifty fatal cases of intestinal amebiasis without diarrhea. The causes of death in these cases, as given by Musgrave, appear in the accompanying tabulation.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Musgrave, W. E.: Intestinal Amebiasis Without Diarrhea, Philippine J. Sc. (B) 5: 229, 1910.

Lenz [2] reports one case of appendicitis in amebic dysentery. The appendix was removed, but as far as the report shows, was not examined to determine whether or not amebas were present. He states that "perhaps" amebas had lodged in the appendix.

Le Roy des Barres [3] reports three cases of appendicitis occurring in conjunction with, or following, amebic desentery. Operation was performed in two of these cases but no endamebas were found in the appendix in either case. He is of the opinion that in some cases the amebas penetrate the walls of the appendix and are instrumental in causing inflammation (although he cites no cases illustrating this). In other cases in which appendicitis is associated with amebic dysentery, he believes it to be due to bacterial infection resulting from ulceration of the cecum.

Fig. 1.—Cross-section of appendix, showing two ulcers extending into the submucosa.

Vives [4] states that true appendicitis may occur in acute dysentery, ulceration of the appendix giving rise to clinical symptoms of appendicitis. As a rule, however, the appendicitis is masked by the dysenteric phenomena or by the symptoms of general peritonitis due to perforation of the appendix. The condition is usually first revealed at the necropsy. In addition to true appendicitis, in cases of chronic relapsing dysentery there is a pseudo-appendicular syndrome characterized by clinical symptoms of appendicitis, but without anatomic lesions in the appendix. The condition is probably due to dysenteric lesions in the cecum, which are almost constant in fatal cases. Vives has found that appendicitis, both true and false, is more frequent in amebic dysentery than in bacillary dysentery or unclassified dysenteries.

The case that I report is unique in that it is complete, both from a clinical and a pathologic standpoint, fo ra diagnosis of appendicitis was made and the patient was operated on, and pathologic examination revealed a true inflammatory condition existing within the appendix, involving the mucous and submucous coats, in which *Endameba histolytica* could be demonstrated.

REPORT OF CASE

History.—A negro man, aged 33, who gave an unimportant history, who did not remember having had diarrhea, and whose residence for the last ten years had been the Birmingham district, Ala., three days previous to his entrance to the Hillman Hospital was taken suddenly ill with cramps, which continued severely for some time as a general intra-abdominal condition, and later localized in the right lower quadrant. During the attack there was much nausea and vomiting. On entrance he was fairly well nourished; his weight was 152 pounds. The temperature was 101, respiration 22 and pulse 90. There was tenderness over the whole abdomen, which was marked in the right iliac fossa, and pressure over McBurney's point caused intense pain. The leukocytic count was 22,000 and the urine showed a trace of albumin but no casts.

Operation and Result.—The patient was prepared for operation, and the appendix removed through a right rectus incision. The appendix on removal was 9 cm. in length, and its circumference at the base was 4 cm. There was considerable edema, but no marked inflammatory condition present. The patient did comparatively well for a period of five days following the operation. About noon of the fifth day, intestinal hemorrhage was noted by the appearance of blood in the stools. The possibility of typhoid was considered. It was impossible for the internists in consultation to discover any symptoms referable to this disease, and the Widal reaction was negative. An effort was made to control the intestinal hemorrhage by absolute rest, the administration of morphin and the discontinuance of all medication by mouth or rectum. Normal horse serum was given. Such measures proved useless, for the patient became rapidly worse, and succumbed on the seventh day after the operation

I was most anxious to know the real primary cause of death in this case, so that the responsibility for the mortality could be properly placed. The technic used had stood the test in all my previous cases. It occurred to me that the catgut purse string might possibly be at fault. I requested a necropsy, together with a careful pathologic study of the case. Such a condition as found on necropsy was not even suspected.

CAUSES OF DEATH IN FIFTY CASES OF INTESTINAL AMEBIASIS WITHOUT DIARRHEA

	Number
Peritonitis following perforation of the appendix	3
Liver abscess perforating pleura	1
Liver abscess perforating peritoneum	1
Liver abscess without perforation	2
Acute pericarditis	1
Pulmonary tuberculosis	8
Estivo-autumnal malaria	2
Ulcer perforation of large intestine	5
Beriberi	7
Lobar pneumonia	20

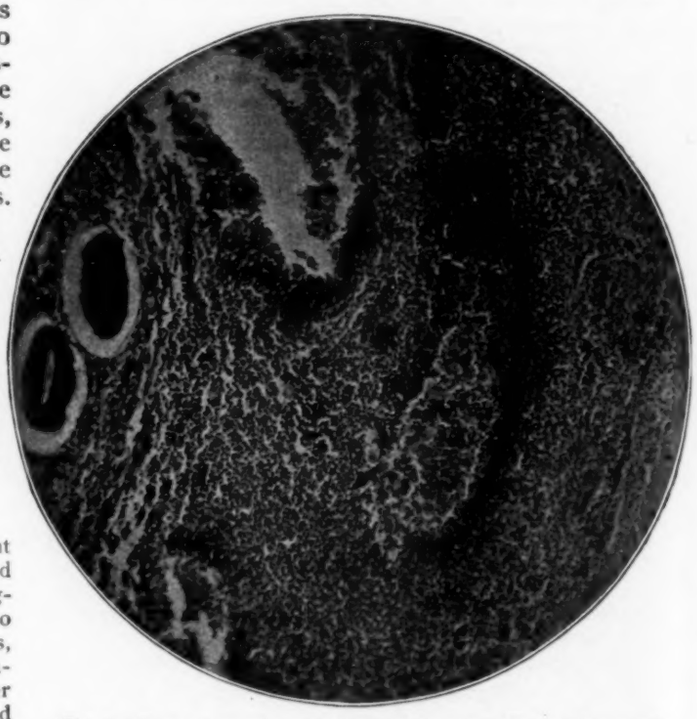

Fig. 2.—Base of an ulcer of the appendix, showing invasion nearly to the muscularis. Amebas are visible in the ulcer cavity and surrounding tissue.

2. Lenz, W.: Blind-darmentzündung und Dysenteria-amöben, Arch. f. Schiffs.- u. Tropen. Hyg. **14**: 952, 1910.
3. Le Roy des Barres: Appendicite et dysentérie amibienne, Bull. et mém. Soc. de chir. de Paris **38**: 268, 1912.
4. Vives, J.: Appendicitis et pseudo-appendicitis dysentériques, Thèse de Paris, 1918-1919, p. 267.

Necropsy.—This was performed by Dr. George S. Graham, Feb. 5, 1914, seven hours after death. The following are the important findings recorded by Dr. Graham:[5]

The body was that of a well-developed and well nourished negro man, 169 cm. long.

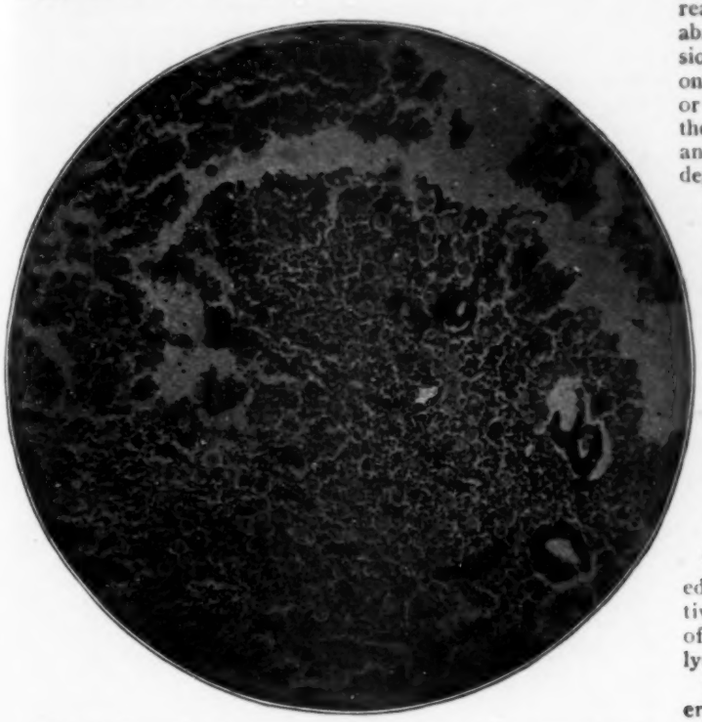

Fig. 3.—Fragment of mucosa of an appendical ulcer showing many amebas.

In the peritoneal cavity, the serosal vessels were congested, the surfaces dull or covered by a thin coating of yellowish fibrinopurulent exudate. The exudate was slight in amount but widely distributed. Beneath the surgical wound the intestinal coils were loosely adherent to each other and to the parietes. In the right iliac fossa there was an abscess that was partially walled off from the general peritoneal cavity. It contained pus and a small amount of fecal material. It appeared to center about an area of perforation in the wall of the cecum. On the surface of the cecum there was a recent appendectomy wound. It appeared to be clean, with normal repair in progress. The mesenteric lymph nodes were slightly enlarged, usually reddish, and occasionally hemorrhagic.

Both lungs were slightly boggy, but crepitant. The cut surfaces were moist and pinkish to dark red. Scattered minute areas of increased density could occasionally be made out. There was a well defined hypostatic congestion of the dependent portions of the lower lobes, with associated atelectasis. The bronchioles were filled with leukocytes, mingled with which, in some cases, were large numbers of bacilli. The peribronchial acini showed a variable amount of cellular exudate, and considerable fibrin was present in some areas. The alveoli, in general, showed considerable amounts of a serous coagulum and many free pigment-containing cells.

The liver weighed 2,080 gm. Between the upper surface of the right lobe and the under surface of the diaphragm there was an abscess cavity 5.5 cm. in diameter, containing a thick red stained puruloid material. The cavity extended downward into the liver substance to a depth of 4 cm. Here its wall was covered by a soft, yellowish, ragged layer of fibrin and necrotic tissue, and showed, on section, a surrounding zone of deeply congested liver substance averaging 1 cm. in width. Deep within the right lobe was a second abscess cavity of similar appearance, 4 by 5 cm. in diameter.

5. The complete necropsy report appears in the Transactions of the Section and in the author's reprints. Only the significant parts are given here.

In general, the cut surfaces of liver tissue were reddish brown, the markings slightly obscured. The gallbladder was filled with dark green bile. Its ducts were patent. Sections through the wall of an abscess showed an abrupt erosion of the liver tissue associated with a minimum of leukocytic reaction and a variable amount of fibrin formation. The abscess wall was irregular, with sharply cut outward extensions of the main cavity, apparently of recent origin, while on the other hand there were frequent peninsulas of more or less necrotic tissue projecting from the wall outward into the cavity. Here was an explanation for the ragged appearance presented by the wall in gross. The cavity contained degenerating cellular material and débris. Leukocytes were present in very moderate numbers. There were considerable numbers of amebas. Occasional forms showed two nuclei. They occurred particularly along the margins of the degenerating liver tissue, and occasionally could be found in the superficial levels of the more intact parenchyma, where they appeared to lie in the space between the endothelial wall of the sinusoids and the cells of the liver cords. The eroding process did not involve the tissues of the portal canal to more than a slight degree, but occasional amebas occurred in the tissue spaces and lymph vessels of the connective tissue of the portal canals forming portions of the wall of the abscess cavity. The liver tissue in the zone surrounding the cavity showed marked concentric flattening of the parenchymal tissues, with dilated and injected sinusoids and more or less extensive pressure atrophy of the liver cells.

The suprarenals were negative in gross. There was edema of the cortex and marked vacuolation and degenerative changes of the cortical cells of the middle or inner levels of the zona fasciculata. There were occasional foci of lymphocytic accumulation along the inner cortical margins.

The intestinal walls were relaxed. They presented a generalized fibrinopurulent exudate, and the surfaces of approximated coils were at times slightly adherent. The mucosa of the stomach and upper small intestine showed no unusual appearance, but the lymphoid nodules of the lower ileum stood out as distinct, slightly elevated bodies scattered in large numbers over the surface.

The appearance of the cecum was striking. It presented numerous ulcers from 0.5 to 3 cm. in diameter, with soft,

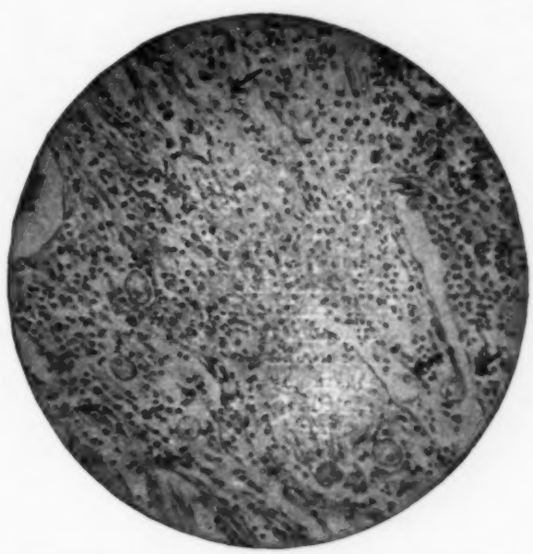

Fig. 4.—Drawing from an oil immersion view of Figure 2 showing amebas in lymphatics, indicated by arrows.

necrotic, overhanging walls and a central cavity filled with a yellowish or, at times, black, gelatinous material. The marginal intact mucosa was often extensively undermined, and neighboring ulcer cavities appeared in some cases to be connected by fistulous tracts extending laterally in the deeper levels of the wall beneath bridges of intact mucosa. In some cases the undermined mucosa of the large ulcers

hung as ragged masses from the ulcer margins, or the necrotic tissue of the ulcer cavity may have separated so as to form a polypoid mass adherent by a pedicle to the excavated walls. The ulcerative process had involved the intestinal structures to varying depths. In many cases the inner muscular coat was exposed, and occasionally it appeared to have been invaded, or even destroyed, so that the serosa formed the floor of the ulcer, at least in part. In an ulcer situated 4 cm. below the ileocecal valve there had been complete perforation of the bowel wall. This perforation communicated with the abscess already noted in the right iliac fossa.

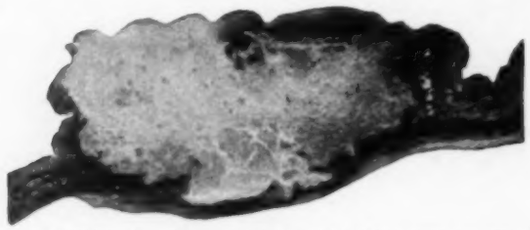

Fig. 5.—Section of entire cecal wall, with ulcer opening into lumen, and erosion completely through the muscularis.

Advanced ulcerative lesions of the type described were rather sharply limited to the cecum and the proximal colon. None were found beyond a distance of 9 cm. from the ileocecal valve, although occasional smaller superficial lesions occurred at intervals along the more distal surfaces. Here, also, there were frequent slightly elevated nodules, suggesting swollen solitary follicles with central umbilication or definite loss of superficial tissues.

Section through one of the numerous ulcers of the cecum revealed characteristic undermining of the mucosa, whose divided edges partially covered a cavity filled with faintly stained tissue débris. The cavity extended laterally in the submucosa, and toward the middle part of its floor showed progressive involvement of the outer coats. In some of the sections, the more central floor consisted only of the serosa. Considering the amount of tissue destruction and the resulting exposure of the subepithelial tissues to infection, there was a surprising lack of any leukocytic reaction commensurate with what would be expected in other ulcerative conditions. The amebas themselves appeared to excite no leukocytic response, and were found in numbers in tissues showing little or no evidence of inflammatory reaction. They occurred in the tissue spaces and frequently in the dilated lymph vessels. Only rarely could they be found in the smaller blood vessels. The marginal tissues of the abscess cavity often showed a considerable fibrin deposit. This was especially marked in the exposed serosa of the floor. Here, also, there was a considerable leukocytic infiltration, but it is noteworthy that the reacting cell was almost always the lymphocyte. Polymorphonuclear leukocytes were rare. In some sections the serous surfaces of the cecum showed a recent exudate of fibrin and leukocytes, and here the polymorphonuclear leukocytes became prominent. No amebas were found outside the serosa.

The appendix was markedly swollen, the cross section of the fixed and dehydrated specimen measuring 1.2 cm. in diameter. There was a ragged area of ulceration involving about one quarter of the inner circumference of the walls and extending downward irregularly through the submucosa to the inner margins of the circular muscular layer. There were numerous smaller ulcers with a varying degree of destruction of epithelium and underlying tissues. Here the tendency was toward the production of a narrow ulcer cavity extending deeply into the mucosa and upper submucosa. The lumen of the appendix was filled with leukocytes, red cells and cellular débris, mingled with which were considerable numbers of amebas. The amebas were found in greatest numbers, however, immediately on the margins of the ulcer cavities. They were present also, sometimes in abundance, in the glandular crypts adjacent to the active ulcers; immediately beneath intact stretches of epithelium; and in the connective and lymphadenoid tissues in the immediate neighborhood of ulcer cavities. They often contained englobed red blood cells. The amebas were usually free in tissue spaces, but in many cases they appeared within the lumens of dilated lymph vessels. They appeared to excite no reactive inflammatory changes. The ulcer margins usually showed marked fibrin deposits. In the deepest part of the two largest cavities there was active polymorphonuclear exudation into the cavity and throughout the underlying tissue, where the inflammatory process extended in a wide sector outward to involve the muscular coat. Here, the intravascular and perivascular spaces often showed abundant polymorphonuclear leukocytes. The blood vessels were everywhere dilated and engorged, and there was frequent interstitial hemorrhage. Small thrombi were frequent. The congestion and hemorrhage became especially marked at the mesenteric attachment and in the mesenteric tissue itself. The serosa showed in some areas well marked polymorphonuclear infiltration, and there was an exudate of fibrin and leukocytes on the peritoneal surface.

The lymph sinuses were dilated and contained numerous lymphocytes, occasional endothelial leukocytes and, at times, moderate numbers of red blood cells. The embedding fibrofatty tissue showed, in places, extensive hemorrhage with considerable fibrin deposit and active lymphocytic infiltration. The central portion of one node was hemorrhagic, and the stroma cells showed well marked degenerative changes. Clumps of bacteria were present toward the central part of the area, and there were numerous polymorphonuclear leukocytes, some of which were breaking up.

The anatomic dignosis was: amebic colitis with perforation of cecal ulcer; abscess of right iliac fossa and generalized acute peritonitis; amebic abscesses of liver; slight pulmonary congestion and edema, with possible early bronchopneumonia; chronic splenitis; old adhesive pleuritis, and recent appendectomy.

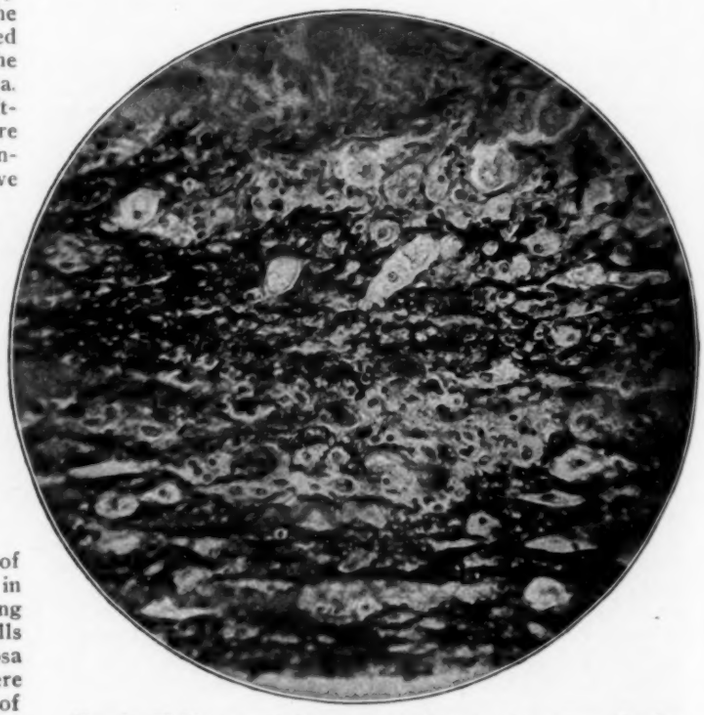

Fig. 6.—Highly magnified section of ulcer in the cecum, showing the peritoneal surface, ulcer cavity and intervening subserosa. Many amebas can be seen.

The following notes by Dr. Graham are full of interest:

Lungs: Rather careful search was made for amebas, but none were found. It is said that amebas may sometimes be found in the pulmonary blood vessels. If they travel to the liver in the portal veins (as commonly believed) it would seem possible that they could live in the blood stream

long enough to reach the lungs. Should they do so they might well excite an inflammatory process there, either as a result of tissue destruction followed by infection from secondary invasion, or they might carry bacteria along with them in their cell body and liberate them in the lungs. MacCallum suggests the latter possibility as explaining the secondary infection common in the liver abscess.

Fig. 7.—Drawing of oil immersion view of cecal ulcer, with amebas in a blood vessel (*B. V.*), and a lymphatic (*L.*).

Suprarenal: The zonal necrosis found in the suprarenal may be the result of the peritonitis, but it is of some interest in view of the belief of some French writers that there are definite clinical evidences of suprarenal insufficiency in amebic dysentery. The lesion suggests the type found not uncommonly in various infections of toxic conditions. The year after I was in Birmingham (1915) I wrote up a little report on some experimental work in which I had found the lesion in the guinea-pig after poisoning with chloroform and other toxic substances. In looking over a lot of human suprarenals at that time I found the lesions in various infections and other toxic conditions, especially diphtheria, lobar pneumonia and acute peritonitis.

Cecum: The points of special interest are: (1) the curious solvent action which the amebas seem to have on the tissues; (2) the lack of any adequate leukocytic defense on the part of the tissues against the amebas. The lymphocyte is the only cell that seems to ward off the attack, and this is only a half hearted attempt. Even when the deeper tissues are freely exposed to the intestinal contents there may be no evident inflammatory reaction such as would be expected, although there is a fibrin formation forming a sort of barrier, and in some places there is the usual polymorphonuclear activity. In the lesion of a mesenteric lymph node, where the latter cells are active, bacteria can be seen as the exciting cause.

I have tried to find amebas at a distance from the ulcerated surfaces either in tissue spaces or in the lymphatics or blood vessels, and have not been able to get them. It seems to me that they must die very quickly after they get away from the places where they have their normal environment, that is, in the intestinal contents or in the tissues so closely exposed that some of the intestinal material in solution may be supposed to be present. In one section I found a probable ameba in the serous coat, apparently at a considerable distance from the lesion, but it had a degenerating appearance. Of course, the amebas must be able to live for some time, occasionally, because they can reach the liver and set up abscesses there. If they go by the blood stream, it is possible that the successful ones are carried in a protecting envelop of other cellular material, as, for example, in a small bit of clot broken off from a thrombus. (This explanation was given by Bunting for the survival of amebas that he found in the lungs.) In view of the preference the organisms seem to have for lymph vessels in the intestinal lesions, it seems to me that they may reach the liver by the perivascular lymphatics, but I cannot prove this. However, in the liver they are not infrequent in lymph vessels of the portal canals (as stated in the description), and they may originally go from here out into the lobular tissues to start their abscess formation. The liver cells are engaged in working over the products of intestinal digestion, and the amebas may find in them the food material they are after and, in general, an environment somewhat approaching that in the vicinity of the intestinal epithelium. At the margin of the liver abscess, the amebas that have succeeded in gaining a foothold in the more intact liver tissue do not seem to be in the blood vessels (whose ends are freely opened up by the ulcerative process), but are located in the loose space sometimes considered as a lymph space between the liver cell and the endothelial wall of the capillary or sinusoid.

Appendix: The lesions here seem to depend on primary invasion by the amebas, because in the smaller ones amebas are always to be found in and about the area of tissue destruction. Even after considerable tissue destruction, there are signs that bacterial invasion has taken place, as shown by the intense polymorphonuclear reaction. It is the latter type of reaction that has produced the vascular changes and cellular changes found in the outer coats of the appendix and that has caused the fibrinopurulent exudate. The amebas are not found at any great distance from the epithelial surfaces or the edges of the ulcer cavities.

CONCLUSIONS

1. Intestinal amebiasis may exist without diarrheic and dysenteric history or symptoms.

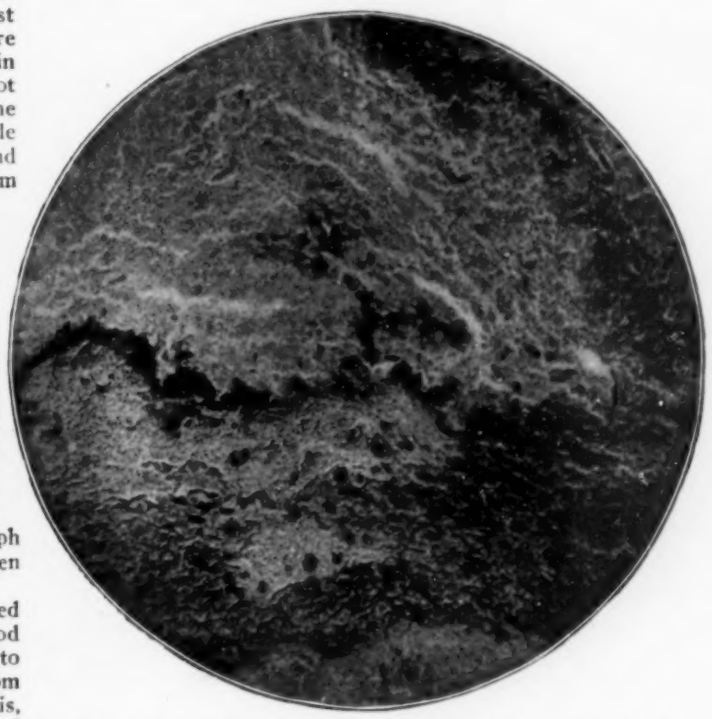

Fig. 8.—Low magnification of liver abscess, showing amebas in the necrotic material of the cavity.

2. *Endameba histolytica* will at times invade the appendix and produce typical symptoms of appendicitis.

3. Every appendix removed should be examined and reported on by a competent pathologist, and in every case of appendicitis the cause of the appendicitis should be established, and other foci of infection should be sought and treated.

4. In case of death, necropsy should be secured. The value of the information obtained therefrom cannot be overestimated.

ABSTRACT OF DISCUSSION

DR. J. B. HAEBERLIN, Chicago: About two years ago I saw a case in which the leukocyte count was about 20,000,

Fig. 9.—Drawing of oil immersion view of edge of liver abscess, showing amebas invading the liver tissue.

with a differential count which indicated a suppurative process, and an eosinophilia of 8 per cent. At the time of operation, the appendix was acutely inflamed and when cut open it was filled with little threadworms. Six or eight weeks ago I saw another case of acute appendicitis with a leukocytosis and eosinophilia, but there were no parasites in the appendix itself. The mother of the boy stated, however, that he passed lumbricoids once in a while.

MIXED TUMORS OF THE THROAT, MOUTH AND FACE*

G. B. NEW, M.D.
ROCHESTER, MINN.

The mixed tumors of the throat, mouth and face present a fairly typical clinical picture, but the grouping of the tumors from a pathologic point of view has been widely discussed. These tumors are most often seen in the parotid or submaxillary region, associated with the salivary gland, and on this account are usually called mixed tumors of the salivary glands. They may, however, occur in various parts of the throat, mouth and face, and it would seem that they are in no way related to the salivary glands.

I have reviewed the cases of mixed tumors of the head and neck seen at the Mayo Clinic from 1912 to 1918, sixty-eight in number, especially with reference to the various locations.

HISTORY AND CLINICAL FINDINGS

Patients with mixed tumors usually come for examination because of recent increase in the size of the tumor, which has been present for several years. Thirty-three, nearly half of the tumors in my series, had been present for more than five years before the patient came for examination. In one case there had been a tumor for forty years; in five cases, for more than thirty years, and in twenty-two cases, for more than ten years. The tumors were equally common in the two sexes, thirty-three males and thirty-five females being affected, and the different locations were also equally divided between the sexes.

The tabulation shows that these tumors are ten times more common in the parotid region than in the submaxillary region. In Judd's[1] report of the cases seen at the clinic previous to 1911, the same relation is

LOCATION OF TUMORS

Location	No.
Larynx	1
Pharynx	4
Palate	3
Upper lip	3
Sublingual region	1
Cheek	1
Submaxillary region	5
Parotid	50
Total	68

shown; forty-one were tumors of the parotid and four of the submaxillary region. Wood,[2] in his study of fifty-nine tumors, found that twenty-six were in the parotid region, thirteen in the submaxillary region, fourteen in the palate and pharynx, four in the lip, two in the neck, and one in the cheek.

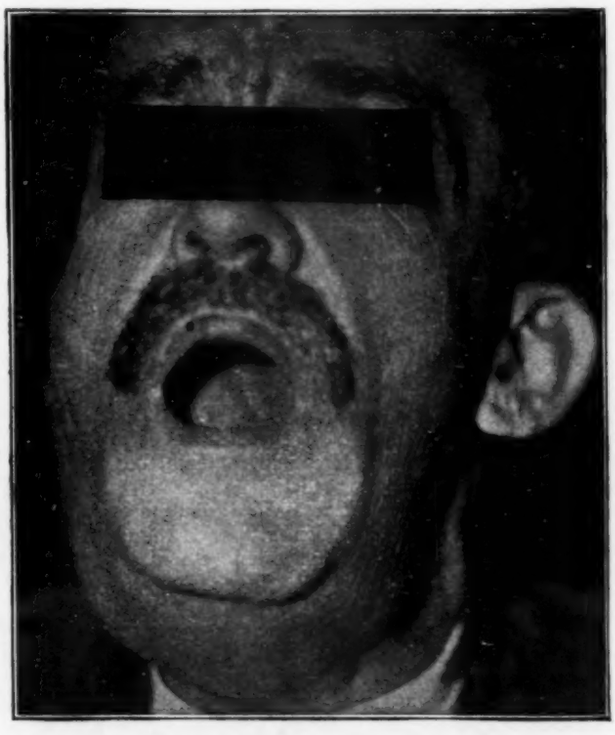

Fig. 1 (CASE 215586).—Mixed tumor of the right pharynx, submaxillary and submental regions, almost filling the pharynx and mouth, of ten years' duration. Tracheotomy performed one year before examination on account of laryngeal obstruction. Tumor removed by Dr. Judd. (Tissue seen in the mouth is tumor, not tongue.)

This type of tumor presents, clinically, a hard, nodular surface, with the feel of a malignant growth. Such

* From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Judd, E. S.: Mixed Tumors of the Parotid Glands, J. Minn. M. A. and Northwestern Lancet **31**: 287-290, 1911.

2. Wood, F. C.: The Mixed Tumors of the Salivary Glands, Ann. Surg. **39**: 57-97, 207-239, 1904.

tumors in the pharynx are usually located laterally, or bulging the posterior pharyngeal wall and the palate. As they become larger they may fill the entire pharynx, causing dysphagia, and sometimes they

Fig. 2 (CASE 215586).—Specimen.

require a tracheotomy, as was performed in one of my cases. The patients, because of the slow growth of the tumors, accustom themselves to the gradual diminution of the air space and small space through which to swallow. It is remarkable that some patients are able to eat anything with the huge tumor filling the mouth and pharynx. In one of my cases the growth, which had originated in the hard palate, had extended upward and involved the entire antrum. When the tumors are situated on the hard palate they usually cause a depression in the bone similar to that produced by a dermoid; as they become larger they may perforate the bone. One of the tumors in my series and one reported by Sturgis[3] were on the soft palate, which is rather an unusual location. When in the parotid region they are freely movable at first, but after they increase in size they become fixed between the posterior margin of the ascending ramus of the jaw and the mastoid region; the facial nerve is sometimes paralyzed from the pressure by the tumor. In the one case that I have seen in which the larynx was involved, the entire subglottic region was thickened but not ulcerated. The laryngoscopic picture was similar to that seen in two of my cases of amyloid tumor of the larynx. The patient had been gradually having increased dyspnea for eight years. Microscopic examination of the tissue determined the diagnosis in this case. The patient did not stay in the clinic to have an operation. I found only one case, that of Wood, of mixed tumor of the lower lip; the upper lip is usually the one involved. As Martin[4] points out, they all occur laterally, like a harelip, and may be found from one-fourth inch in diameter to a much larger size (Fig. 9). The one tumor in the cheek was located about equidistantly between the angle of the mouth and the external auditory canal.

The glands are rarely involved in this group of cases previous to operative interference, and then they are not usually markedly malignant but metastasize in the upper cervical glands. Occasionally a mixed tumor becomes sarcomatous and is very malignant in type.

ETIOLOGY AND PATHOLOGY

The etiology of mixed tumors is obscure, but there are several theories regarding their possible source. Wood, in 1904, thoroughly reviewed their etiology. Volkmann[5] believes them to be endotheliomas arising from the endothelium of the blood vessels, and the lymphatics. Da Costa[6] also classifies this type of tumor as an endothelioma, and says that he has removed one such tumor from the tonsil, two from the nasopharynx, one from the superior maxilla, and two from the carotid body. He believes that it is not possible clinically to distinguish with certainty endothelioma from ordinary sarcoma. Other writers

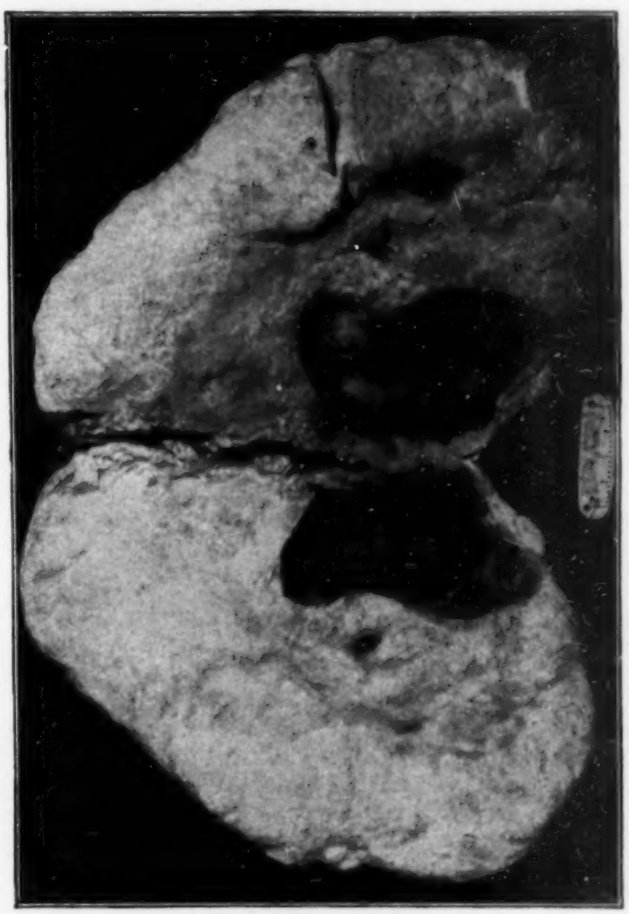

Fig. 3 (CASE 215586).—Specimen on section, showing large cystic area.

believe that mixed tumors originate from the glandular structure of the salivary glands. Fraser,[7] in an article

3. Sturgis, M. G.: Mixed-Cell Tumors of the Soft Palate, Surg., Gynec. & Obst. **18**: 456-459, 1914.

4. Martin, A.: Remarks on Mixed Neoplasms of the Upper Lip, Internat. Clin. **4**: 273-285, 1918.

5. Volkmann, R.: Ueber endotheliale Geschwülste, zugleich ein Beitrag zu den Speicheldrüsen- und Gaumentumoren, Deutsch. Ztschr. f. Chir. **41**: 1-180, 1895.

6. Da Costa, J. C.: Modern Surgery, Ed. 8, Philadelphia, W. B. Saunders Company, 1919, p. 427.

7. Fraser, A.: Mixed Tumors of the Salivary Glands: A Study Based on the Experimental Production of Neoplasm in the Submaxillary Gland of the Dog, Surg., Gynec. & Obst. **27**: 19-39 (July) 1918.

on the experimental production of mixed tumors, concludes that mixed tumors arise from the ducts of adult glands, and that injury, such as localized or partial obstruction of the ducts, probably plays an important part in the production of these tumors. The fact that there is never any close connection either grossly or microscopically between the salivary glands and the tumors seems to discount the theory that they arise from the gland substance; they are always surrounded by a definite capsule and not connected with the gland. If trauma to the ducts, as suggested by Fraser, is causative of the condition, it seems that these tumors should be much more common in the submaxillary region than in the parotid region, since the submaxillary ducts are many more times affected by salivary calculi and acute and chronic inflammatory conditions than are the parotid gland and Stenson's duct. Those writers who uphold the embryonal theory believe that the tumors develop from abnormal inclusions of tissue during the embryonal period. Others believe that they develop from embryonic tissue during life; this theory has much to substantiate it. It would explain the presence of the tumors about the throat, mouth and neck. Grossly, they present a definite capsule, are rounded, smooth and lobulated. The slowly growing tumors are usually hard, while the rapidly growing ones are soft. Some are multiple. On section, they are granular in appearance with some cystic areas filled with serum. Microscopically, they present connective tissue and epithelium in the form of tubules. The majority of the tumors contain cartilage. Wilson and Willis[8] give the detail pathology of these tumors.

Fig. 4 (CASE 251596).—Mixed tumor of the right pharynx extending into the nasopharynx and palpable at the angle of the jaw; duration one year.

Fig. 5 (CASE 251596).—Postoperative drawing, showing incision.

DIAGNOSIS

The diagnosis of mixed tumors in some cases must be made microscopically; but in the pharynx, palate, and the submaxillary and parotid regions, a clinical diagnosis, found to be correct on microscopic section, is not difficult to make. The hard tumor, which feels malignant and has existed for several years, during which time it has been slowly enlarging without breaking down, is characteristic of these cases. The tumor is usually freely movable; often it is not noticed until it is 0.5 cm. by 1.0 cm., and the patient comes for examination when the growth begins to increase in size. If the growth is in the pharynx and palate, the condition must be distinguished from a nasopharyngeal fibroma that has filled the nasopharynx and bulges the palate. In the parotid and submaxillary regions, tuberculous and inflammatory glands may simulate a mixed tumor. In one case of our series a fibroneuroma was mistaken for a mixed tumor.

TREATMENT AND PROGNOSIS

The treatment of the mixed tumor is surgical. If the tumor is in the pharynx, it should be removed either through the mouth or through the submaxillary and submental regions, depending on the size and the location of the tumor. Of the four pharyngeal tumors for which the operation was performed, two were removed through the mouth and two through the submaxillary region. In operating through the mouth, the incision is made over the tumor, down to the capsule, and the tumor is shelled out by the use of the finger or of blunt dissecting scissors. The tumor in this location is sometimes firmly embedded and very difficult to enucleate, and at times it may be necessary to remove a part of it before the remainder can be shelled out. The two tumors that were removed through the

Fig. 6 (CASE 251596).—Specimen.

8. Wilson, L. B., and Willis, B. C.: The So-Called "Mixed" Tumors of the Salivary Glands, Am. J. M. Sc. **143**: 656-670, 1912.

submental and submaxillary region were enucleated without difficulty; a tracheotomy which had been performed on one of the patients before coming to the clinic on account of the obstruction simplified the

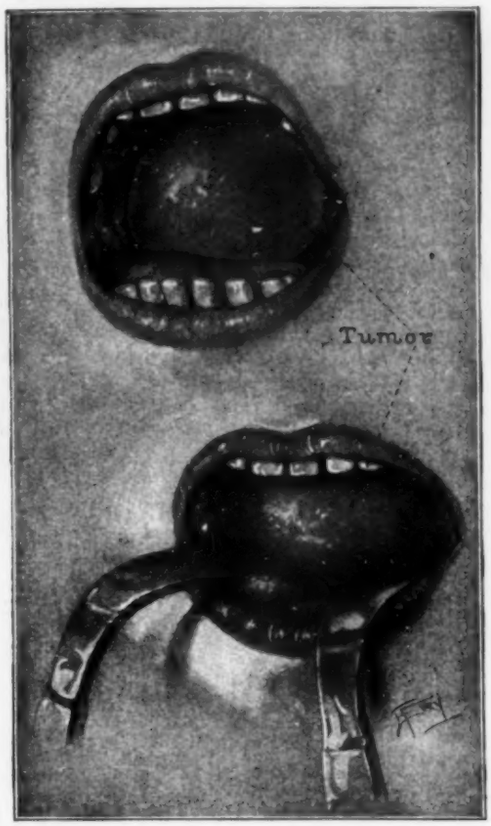

Fig. 7 (CASE 220167).—Mixed tumor of the left pharynx, almost completely filling the mouth; duration, seven years.

operation. Palatal tumors may be enucleated under either local or general anesthesia If the tumor is fixed to the bone, a general anesthesia is preferred so that the bone may be cauterized with the soldering iron in order to prevent any recurrence. If the antrum is involved, the soldering iron should be carried up into the antrum thoroughly to cook the tumor. The lip tumors are removed under local anesthesia, and present no difficulty. Removal of the parotid tumors is sometimes problematic because of their close relation to the facial nerve. For some of these patients, particularly women, we have, therefore, used radium in an attempt to check the condition rather than risk injury to the facial nerve. Results in this group of cases show that there is very little, if any, change in these tumors under radium treatment. In all cases in which it is at all likely that the nerve may be injured, the patient should be warned before operation as to the possibility of facial paralysis. If a tumor is recurring, it is sometimes necessary to remove the parotid gland as well as the facial nerve and perform a block dissection of the neck. Mixed tumors are potentially malignant, and, when they recur after a complete primary removal, they may metastasize and should be treated accordingly.

Questionnaires were sent to the sixty-eight patients in this series in order to ascertain their present condition; replies were received from forty-five. Thirty-four had had primary operation, and only one of these had a recurrence. This patient had a mixed tumor of the palate involving the antrum, which has been cauterized twice and is well now. Eleven of these tumors, two of the palate, two of the pharynx, and seven of the parotid, ruptured in the removal; the other eleven patients had had secondary operations in the clinic; and of these, one is dead, one has general metastasis, and one has broken down cervical glands; eight are well and have had no recurrence. Twenty-one of the group of thirty-four who had primary operations had parotid tumors removed, and none of these had had permanent facial paralysis following operation. Seven patients had temporary paralysis, ranging from two weeks to four months. Five of eighteen patients who, at the time of examination, had been operated on elsewhere had permanent facial paralysis.

Fig. 8 (CASE 240902).—Mixed tumor of the left hard and soft palate; duration, one year.

This type of tumor should not be classified as mixed tumor of the salivary glands until there is some evidence to show that it is related to these glands. The tumor may be present in various locations in the throat, mouth and face. It seems that a favorable prognosis in these cases depends on the complete removal of the tumor at the primary operation, as the percentage of recurrence following complete removal is very small.

ABSTRACT OF DISCUSSION

DR. LEE W. DEAN, Iowa City: I am surprised at the number of mixed tumors of the nose, throat and face that

Fig. 9 (CASE 222212).—Mixed tumor of the upper lip; duration, nineteen years.

Dr. New reported. In my experience this type of tumor has been rather rare. The lesson to be derived from his experience is that we must not do a mutilating operation when we are dealing with a semimalignant tumor. I have seen cases in which half a mandible or a superior maxilla had been

removed with a diagnosis of a small, round cell sarcoma, and there has been no recurrence either local or systemic. I have been inclined to question the diagnosis of some in these cases. In treating tumors of the jaw we must be sure that we are not dealing with an adamantinoma, a giant cell sarcoma or other semimalignant tumor before we operate. I am very much interested in the statement which I have had confirmed by pathologists that these mixed tumors of the parotid gland do not develop from the gland tissue itself. The most interesting mixed tumor which I have had was one that developed from the posterior part of the vomer. It invaded the nasopharynx and extended into the mesopharynx. The Italian operation was performed; the hard and soft palate was split in the median line. The tumor was easily removed and the palate closed. It was a most excellent functional and cosmetic result.

DR. WENDELL C. PHILLIPS, New York: What is the average length of time which has elapsed since these operations were performed? It is important to know whether this type of operation offers any great hope as to the ultimate and permanent recovery of these patients, and the length of time that has elapsed since the operation will be significant.

DR. JOHN F. BARNHILL, Indianapolis: The outstanding point of Dr. New's paper is the ease with which he makes the diagnosis of mixed tumors before operation. These tumors are not uncommon. I have seen and operated on at least a dozen parotid gland tumors. I never felt I could with certainty know the pathology until the operation was done. To be sure, free movement of the tumor in the parotid tells something. If it is movable, it probably is a mixed tumor;

Fig. 10 (CASE 258922).—Mixed tumor of the right submaxillary region; duration, thirty-four years.

whereas, if it is sessile, we probably are dealing with a genuine malignancy. Two of the cases in which I operated proved to be carcinomas. The whole parotid gland was removed, but I did not know that the whole gland was involved until after I entered it. It is wise in these cases to tell the patient frankly that if we find that the whole parotid gland is involved, wisdom would dictate that all should be removed, and that, should this be necessary, they must expect complete facial palsy. I do not believe it is possible to take out any considerable proportion of the parotid gland without facial palsy resulting. I have seen five or six cases involving the superior maxilla. They are more malignant than the mixed tumors, consequently I am anticipating ultimate death from recurrence. Those that proved to be mixed tumors in the parotid were easily shelled out and no facial palsy whatever resulted, although the patients had been warned beforehand that such a result might occur.

DR. THOMAS E. CARMODY, Denver: I was interested in the report on the etiology of these cases, and the fact that these tumors do not show glandular involvement unless they have been tampered with, is important. I have made that observation myself. The ease with which he makes a diagnosis is important. Of course, a great many of these cases would be comparatively easy to diagnose, but the difficult cases are those in which the tumors are not so large. I have at the present time a case which involves the nasopharynx and the sphenoidal sinus. Some one had worked on it before and the glands were greatly involved, so that it was necessary to take out the superior cervical glands. I agree with Dr. Barnhill about taking out a tumor of the parotid where the whole gland is involved. One can take out a simple parotid tumor without injury to the facial nerve, but this cannot be done in cases of mixed tumor.

Fig. 11 (CASE 251596).—Mixed tumor of the larynx; duration, twelve years.

DR. GORDON B. NEW, Rochester, Minn.: I think Dr. Dean's point is well taken, that many mutilating operations are performed for tumors that are not malignant. In reporting the end-results of malignant tumors, care should be taken to state the exact nature of the tumor. We might call all of these tumors carcinoma, but they are a mixed tumor type of carcinoma in which the prognosis is much better than in the squamous cell type. We should know the length of time the tumor has existed, and the microscopic pathology. As to the length of time which has passed without recurrence of these tumors: This series extends over a period of eight years. All these cases cannot be diagnosed clinically, and for that reason fresh tissue sections should be made, if necessary, at the time of operation. The pharyngeal, parotid and submaxillary tumors can be diagnosed clinically in a large percentage of cases.

The Scientific Bases of Pathology.—Pathology is anatomic and physiologic; it deals with structure and function; in its purview the whole field of abnormalities is included. Without physics and chemistry the development of pathology would be practically impossible. To them the pathologist must resort when he would obtain conceptions and methods for the accurate measurement of living processes. To measure chemical or physical change in the organism is the first step toward a scientific interpretation of the living process. The student who would become trained in pathology must therefore have a complete knowledge of the elementary principles of physics and chemistry. These sciences serve as an introduction to the whole curriculum, and the courses in these subjects should familiarize the student with fundamental laws and principles on which the whole structure of experimental science is built. The subjects which are taken up in the preliminary period are the foundation for all the later work. It is hopeless to escape from empiricism in medical teaching and practice if we do not take the precaution of beginning the course by a study of physics and chemistry. In the demand for a clear and sufficient introduction to fundamental scientific ideas pathology merely emphasizes the claim which is made by all other branches of medicine.—J. L. Smith, *Lancet*, July 10, 1920.

EXPERIMENTAL IMPLANTATION OF FOREIGN TISSUE INTO THE LUMEN OF LARGE ARTERIES

JOHN P. JONES, M.D.
WAKEFIELD, R. I.

As we were interested by Herrick's[1] report of implanting musculofascial strips into the lumen of arteries without subsequent clotting, Captain Dozier, Captain Propst and I, while on the surgical service of Evacuation Hospital No. 36, A. E. F., France, made experiments to test the validity of Herrick's findings.

REPORT OF EXPERIMENTS

EXPERIMENT 1.—*Operation.*—March 12, 1919, a young female mongrel dog, weighing 11 kg., was anesthetized with morphin and ether. The abdomen was opened by a 7.5 cm. incision in the midline, the intestine pushed to the side, the right common iliac artery isolated, and its blood current arrested by two small clamps placed about 2 cm. apart. A fine silk suture was passed through the center of the artery by means of a small cutting needle, and by means of traction on this suture a small cataract knife was drawn through, making a slit about 3 mm. long through each side of the artery. The knife was withdrawn, and by means of the same suture a strip of muscle and fascia from the rectus abdominis, one-half the diameter of the lumen of the artery, was drawn through the slits, projecting on each side about 4 mm. A suture on each side was required to control a slight bleeding proximal to the insert. The clamps were removed, and the pulse below was of decidedly less volume than on the opposite side. The abdomen was closed in three layers. The animal made a rapid and uneventful recovery from the operation.

Necropsy.—June 2, the animal was anesthetized and the abdomen opened. The pulse was apparently of equal volume in each femoral. Except for some adhesions, the artery presented no external evidence of having been molested. One cm. of the artery was resected, and on being held to the light presented a perfectly smooth and regular lumen with a band about one-fourth its diameter crossing its center from side to side. On examination this band was found to be smooth and glistening, and apparently covered with endothelium. There were no clots adherant to it.

EXPERIMENT 2.—*Operation.*—March 18, 1919, a young male dog, weighing 6 kg., was anesthetized with ether and morphin, and the right common carotid was isolated, and a musculofascial strip, from the sternomastoid, one-half the diameter of the lumen of the artery, was passed transversely through the center of the vessel as described in Experiment 1. There was no bleeding after this insert had been pulled through. The pulse in the carotid above this was very weak. The wound was closed and the dog made an uneventful recovery.

Necropsy.—June 2, under ether anesthesia, the carotid was exposed and 1 cm. of it was removed. There was a small teat of tissue projecting from one side of the artery, the only indication of the operation on viewing it from the outside; but across its lumen passed a smooth, glistening band of tissue about one-fourth the diameter of the lumen of the artery.

EXPERIMENT 3.—*Operation.*—March 23, 1919, a young male dog, weighing 6 kg., was anesthetized with morphin and ether, and the right common carotid was isolated and clamped. Then two thirds of its circumference was removed for a distance of 1 cm. Into this space was sutured a piece of fascia and muscle 4 mm. thick, taken from the sternomastoid. After the clamps had been released there was a barely perceptible pulse above the operated area. The wound was closed in the usual manner.

Necropsy.—June 2, when the neck was opened through the old scar, it was found that the artery was replaced by a small fibrous cord for a distance of about 2 cm. There was no lumen to the cord. This was probably caused by suturing in the graft too closely, not leaving sufficient room for the blood current.

EXPERIMENT 4.—*Operation.*—April 8, 1919, the same animal used for Experiment 1 was anesthetized, and the right common carotid isolated in the usual manner. A musculofascial insert of approximately half the diameter of the lumen of the vessel was then placed as in the first two experiments.

Necropsy.—June 2, when the carotid was exposed, a few adhesions were found. One and five-tenths cm. of the vessel were removed. A very minute smooth, glistening cord passed transversely through the center of this section. It was hardly 1 mm. in diameter. There was no clotting about the insert.

EXPERIMENT 5.—*Operation.*—April 24, 1919, a female mongrel, weighing 12 kg., was anesthetized and an insert one-half the diameter of the lumen of the vessel was placed transversely in the left common iliac artery.

Necropsy.—June 3, the cord was found smooth and glistening, and about one-third the diameter of the artery lumen. It was apparently covered with endothelium, and there were no clots adherent to it.

EXPERIMENT 6.—*Operation.*—April 29, 1919, a female mongrel, weighing 11 kg., was anesthetized, and the right common carotid was exposed and one third of its circumference was removed for a distance of 7 mm. A piece of sternomastoid muscle and fascia 4 mm. thick was removed and sutured as a patch over the carotid defect, with the muscle surface turned inward.

Necropsy.—June 3, there were rather dense adhesions about the patch, but the artery was isolated with little difficulty. The pulse on this side was very good, but probably of a little less volume than on the opposite side. A section of the artery was removed and slit open. The patch was projecting into the lumen of the vessel for about 1 mm., flattening that side of the lumen to a slight extent. It was smooth, firm and glistening. No clots were present. The graft did not show any signs of beginning aneurysmal bulging, though the necropsy was performed thirty-five days after the graft was placed.

EXPERIMENTS 7 and 8 (May 1, 1919); 9 (May 2); 10 (May 4), and 11 (May 5).—These were all performed in the same manner, the common carotid artery being used. In every case we tried to make the musculofascial insert as nearly one-half the diameter of the lumen of the artery as possible. In none of the experiments was it necessary to take a stitch in the edges of the slit through which the insert was passed, in order to stop bleeding, as the insert fit tightly, and the elasticity of the vessel wall made it close firmly about it. The necropsies were all done June 3, 1919, and in every case there was a good pulse distal to the insert. No clots were present. All the inserts were smooth, glistening, fibrous bands of one-third to one-sixth the diameter of the artery lumen.

COMMENT

This report is incomplete in that no histologic examinations were made. Soon after making the necropsies we received orders to move, and the specimens were lost in moving. But I think the foregoing work substantiates Herrick's findings and justifies two very important conclusions:

1. A foreign tissue can be placed in the lumen of an artery without immediate absorption and without the formation of a permanent clot.

2. Vessel walls can be sutured without necessarily having intima to intima approximation.

Further work on this interesting subject will show whether or not a temporary clot is usually formed and whether the insert is ultimately absorbed.

1. Herrick, F. C.: An Experimental Study of the Surgery of Large Arteries, J. A. M. A. **71**: 2120 (Dec. 28) 1918.

Clinical Notes, Suggestions, and New Instruments

A NEW KNOTTED HEAD BANDAGE, SECURE AND ECONOMICAL

ELMER D. TWYMAN, M.D., KANSAS CITY, MO.

The accompanying illustrations and text describe a head bandage that seems a little different, being perhaps more easy of application than some, economical of bandage material, and quite secure. I devised it some nine years ago during the treatment of a number of scalp injuries. It has been used continuously since that time by myself and my professional friends. I am not aware that it has been previously described. Publication at this time is urged by a former captain in the Medical Corps, who has been wearing it himself with satisfaction. He thinks it may be useful in military as well as in industrial practice.

Fig. 1.—Step 1 of knotted head bandage: A secure band around the base, knotted to its own free end; free end held by patient; gauze over wound.

Fig. 2.—Step 2: Roller passed over the head and the dressing, under the secure band on the opposite side, and knotted to its own slack; the doubled part divided and also held by the patient.

Fig. 3.—Step 3: Roller passed back and forth over the head, under the free end on each side.

Fig. 4.—Final step: Side view; complete covering of head, final knots tied at base on each side. The edges of the bandage have been blackened to show the turns.

The scalp wound having been treated and covered with gauze, the retaining bandage is thus applied:

1. A bandage is passed completely around the head, under the external occipital protuberance, above one ear and above the superciliary ridges, and is tied or knotted to itself just above the opposite ear, leaving the end 3 or 4 inches long. (The place of tying is varied according to the position of the wound to be covered; the secure band around the base is the essential.) The patient may hold the free end of the bandage as shown in Figure 1.

2. The roller is passed over the head and across the wound dressing to a point on the opposite side of the head, is grasped in the slack by forceps passed under the secure circular band,

and is drawn under the band and knotted, a free end being left which is also held by the patient (Fig. 2).

3. The roller is passed back and forth over the top of the head, on each side passing under the free end held in the patient's hand. The dressing is thus covered and held in place. Enough for this purpose, and no more, need be applied (Fig. 3).

4. The roller is tied to the free end on one side, passed around the base of the head to the other free end and knotted again, and again around to the starting point, making a second secure band at the base. The free ends and the roller are cut off.

The result as for a partial covering only is shown in Figure 3. A full head covering can also be made, as shown in Figure 4. The size of the second knot can be reduced by dividing the doubled part of the second free end immediately after tying (Fig. 2).

It is claimed that the least possible bandage holds the dressing in place, that great security is attained, that an ambulatory patient can properly assist in the application, and that in the event of disarrangement the bandage can be replaced like a cap, as it all depends on the base bands. As objections, it may be urged that the knots may be uncomfortable in the lying position, and that they are unsightly. Both these objections have some force if muslin bandage is used, but very little if gauze bandage is used.

416 Argyle Building.

A SIMPLE ARTIFICIAL PNEUMOTHORAX APPARATUS *

J. S. WOOLLEY, M.D., AND GEORGE SHERIDAN, LOOMIS, N. Y.

The apparatus herein described represents a type of pneumothorax "box" recently constructed at the Loomis Sanatorium as the result of several years of experimentation. It has proved so satisfactory that we think a short description of the apparatus would be worth while. In designing and constructing this "box" we have tried to include all the good features of other types of this instrument; hence it is largely a modification of one or more well-known forms.

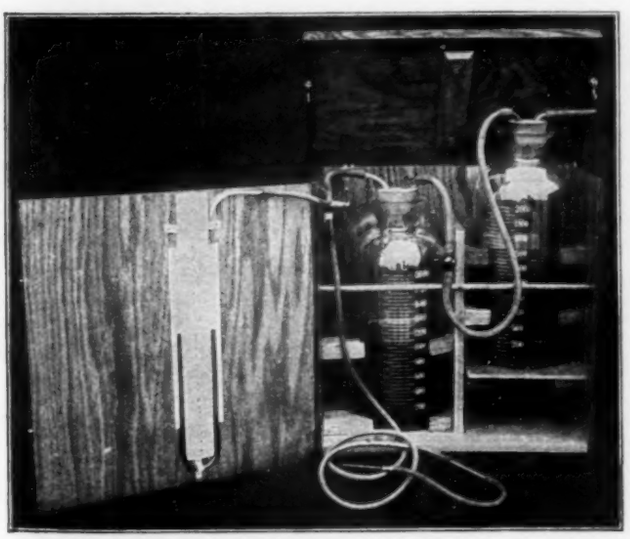

Fig. 1.—Artificial pneumothorax apparatus of box type.

The box, or container, is constructed of ¼ inch, double (both sides) oak veneer. This material is rigid and light in weight and will not warp when well varnished. It measures 13½ inches high, 7¼ inches deep and slightly over 13 inches wide. These are the outside dimensions. The floor and vertical partition are of ½ inch pine. The hinged lid is strengthened by lateral strips, which overlap the sides and front when closed, and is further braced centrally where the handle is attached. Side hooks firmly hold the lid when closed (Fig. 1).

The apparatus operates on the principle of the siphon, the right-hand bottle being elevated to hasten the delivery of gas or air, and lowered outside the case to create suction for filling (Fig. 2). This bottle is elevated by means of a

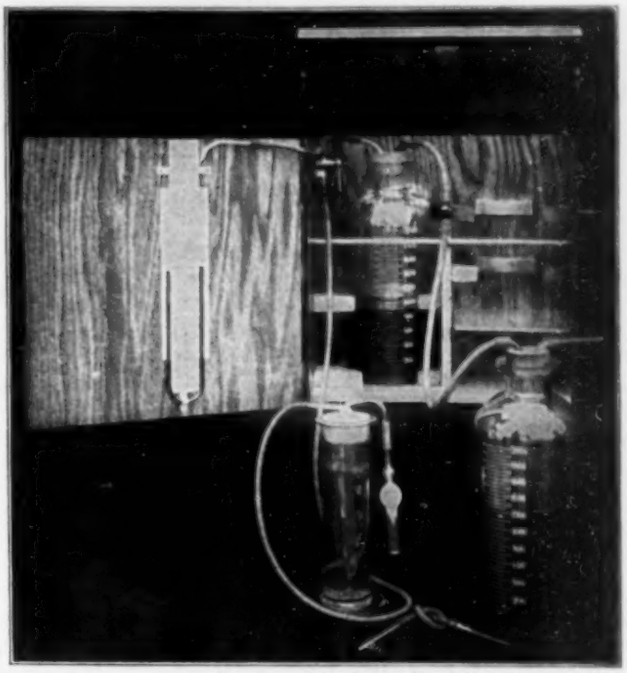

Fig. 2.—Apparatus in position for filling; lowering the right-hand bottle creates suction.

movable shelf (beaver-board) supported at different levels by cleats. The latter are curved so that they partially encircle the bottle and thus hold it in position. The left-hand bottle is held in a similar manner.

The bottles are 2-liter percolating jars, fitted with rubber stoppers and graduated in cubic centimeters. Each has two glass tubes (No. 4), a long one, reaching to the bottom of the bottle, and a short one, barely extending below the stopper. The rubber tubing connecting the bottles is slipped over the long tube of each. The fluid used is compound solution of cresol, 1 per cent., which may be colored with a small amount of alcoholic gentian violet or fuchsin. The color materially aids in reading the level of the fluid.

The stopcocks used are a hard-rubber one between the jars, and a two-way metal cock, mounted on the side, near the manometer. The latter is of the type used for bladder washing, and has a bore of approximately ⅛ inch. It is fastened to a shallow block by means of narrow straps of sheet white-metal. This substance is soft and easily cut with ordinary shears. An empty arsphenamin container supplied us with sufficient material for this purpose. In the butt of the stopcock, which is concealed in the block, is soldered a small pin so that the arm can be turned to only two positions, either "manometer" or "gas." When the former is on, the latter is off, and vice versa.

The manometer consists of No. 3 glass tubing and is mounted by soft metal strips, as illustrated. It is as large as the door will accommodate, and has a range of 14 cm. above and below the zero mark. This equals 28 cm. of water pressure. For ease in reading, the manometer scale is in centimeters. The true pressure is obtained by multiplying this reading by 2. The manometer fluid is also colored.

The rubber tubing used is 3/16 inch (lumen) between the jars and 5/32 inch elsewhere. A slip-joint connection for the needle and a glass window near the end of the tube complete the apparatus. The latter renders the end-piece of tubing easily detachable for sterilization. The "box," ready for use, weighs 15 pounds.

* From the Loomis Sanatorium, Babbitt Memorial Laboratory.

Figure 2 shows the position for filling when using air, which has now largely replaced nitrogen in this work. The delivery tube is now attached to the filter, the end-piece having been removed. The right-hand bottle must be lowered a sufficient distance so that the difference in level between the fluids in the two bottles is always greater than the height of the fluid in the air filter. Otherwise air will not bubble through the latter.

The filter consists of a glass cylinder (approximately 8 by 2 inches) fitted with a stopper and a long and short bent glass tube (Fig. 2). It is nearly filled with 1:500 mercuric chlorid solution. A small calcium chlorid tube, with the bulb loosely packed with cotton, is attached to the longer tube. When the right-hand bottle is lowered and the cocks are opened, negative pressure is created in the left-hand bottle, and this in turn causes air to be drawn through the filter. This air (gas), having passed through cotton and bubbled through the mercuric chlorid solution, is clean and presumably sterile, and is stored in the left-hand bottle until used. This method of "filling" has proved most satisfactory and can easily be done by the average nurse.

The advantages of this apparatus are its ease of operation, lightness in weight (portability) and low cost. The wide range of the manometer is of distinct value. Any carpenter can construct the box or container, and the assembling and fitting up of the parts ought to be well within the powers of the average laboratory technician.

ADAPTATION OF THE SINCLAIR SKATE TO THE THOMAS HIGH-BRIDGE SPLINT

R. M. YERGASON, M.D., HARTFORD, CONN.
Associate Orthopedic Surgeon, St. Francis' Hospital

In severe compound fractures of the lower extremity with extensive destruction of the soft parts, Sinclair's skate has often proved its usefulness as a means of attaching traction. Under the same conditions the high-bridge splint has been found to be most comfortable to the patient as well as neat, convenient and easily adjusted. In order to combine the advantages of the two, I have devised a simple apparatus by means of which the skate is suspended from the side bars of the splint, the combination of skate and hanger taking the place of a foot-piece. The skate was made of a size adapted to the patient. It carries a ¼ inch bolt 1 inch long, with a wing nut, by means of which connection is made with the support and also with the traction.

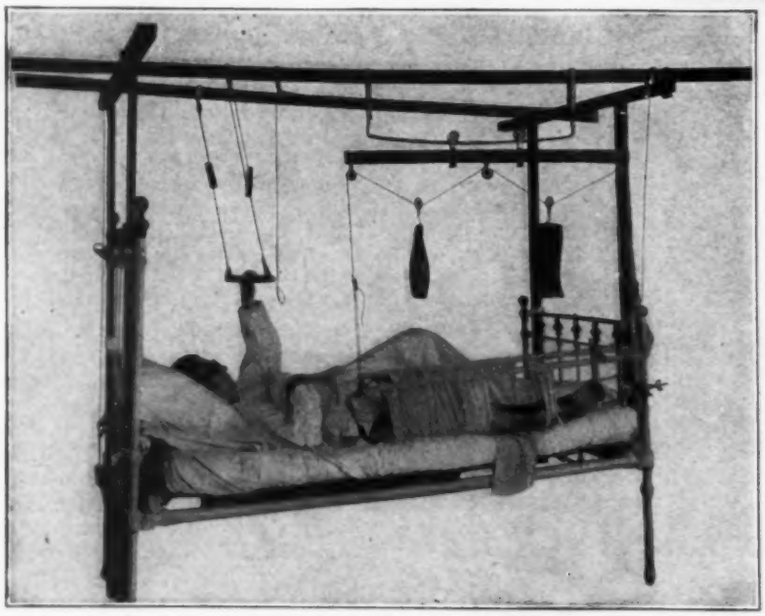

Fig. 1.—General arrangement of apparatus to allow the patient to move comfortably about the bed.

The support consists of a coupling bar of ⅝ inch strap iron with 9/32 inch holes at ½ inch intervals, so that adjustments in height may be obtained, and a suspension T which rests on the sidebars of the splint. This T is of ⅝ inch iron, the

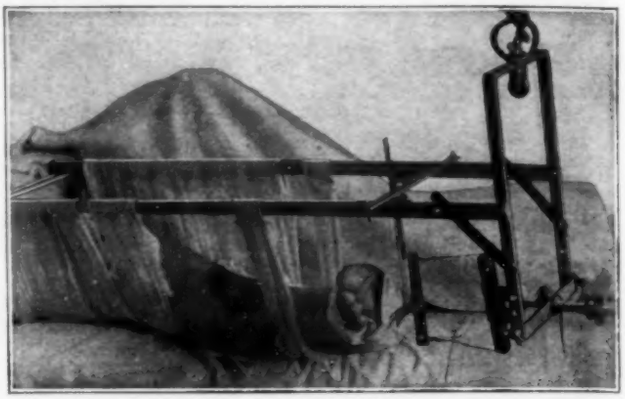

Fig. 2.—Manner in which skate support and tractor adapt themselves to marked external rotation, which was the position giving the most satisfactory alinement of bones in this particular case.

Fig. 3.—Adaptation of skate support and tractor to vertical position of the foot, which is the position of election in most fractures of the leg.

cross bar being 8 inches long and the stem 4 inches. The stem is riveted to the cross bar and is bent down 1 inch from the rivet so that it will turn and thus allow of pronation and supination positions. A hole 1 inch down on the stem allows it to be fastened to the coupling bar by a second ¼ inch bolt, the lower end of the coupling being attached to the skate. At each end of the cross bar is a cotter pin to prevent it slipping off from the side bars of the splint.

In order to prevent the cross bar riding up off the side bars of the splint, as it may do if the slings are drawn up tightly, a small lock, which does not appear in the illustrations, was devised. The lock is simply a small U-shaped piece of sheet iron, which encloses the side bar of the splint, the ends of the U being slotted so that the cross arm of the suspension T will pass through them. One of these locks may be used at each end of the cross arm, in which case the foot-piece becomes a rigid part of the splint.

A small traction T of ⅝ inch iron is attached to the bolt of the skate. In its vertical stem are several 9/32 inch holes so that it may be adjusted at a proper level to bring the transverse bar of this T on a plane with the malleoli. The transverse part is 5 inches long, with a hole near each end through which the picture wire of the traction is passed.

The illustrations show this apparatus in use with the high-bridge splint and the screw tractor. The skate was attached to the foot by means of short strips of gauze bandage pasted on with celluloid solution (Cunningham's adhesive). The

screw tractor that is employed has already been described.[1]

The case was one of compound, comminuted fracture of both bones of the right leg, in the lower third, which occurred, Feb. 26, 1920, a motor truck having passed over the leg. The accident twisted the leg so that the skin was completely stripped from the subjacent fat from 3 inches below the patella to a point below the malleoli. The fat also was completely loosened from the muscles over the same area, and was so shredded that all of it required removal. There was but one wound extending spirally from the upper third of the leg on the antero-internal aspect, downward, backward and outward to the outer side of the os calcis.

The patient was kept in the apparatus illustrated until April 15, when, good union being definitely established, a plaster cast was substituted. May 1, the wound was ready for skin grafts.

54 Church Street.

A CASE OF CONGENITAL OBSTRUCTION OF THE POSTERIOR URETHRA

MELVILLE SILVERBERG, M.D., SAN FRANCISCO

An Armenian boy, aged 8, whose birth had been normal, had, with the exception of some slight and inconsequential disturbance of feeding, enjoyed continuous good health up to the age of 2½ years. He had already ceased to wet the bed, when at that time he had an attack of measles which marked the beginning of his urinary troubles. Enuresis again developed and has continued ever since. Increasing frequency of urination was noticed during the day, but no observation in this regard could be made at night, the bed becoming wet soon after he retired. At the age of 6, urination for the first time began to be painful. The pain was confined to the beginning of the act, and was promptly relieved during its consummation. At 7 pus was first discovered in the urine.

The boy had developed normally both mentally and in the main physically, though it was quite evident that growth had been somewhat retarded. Beyond his urinary complaint he

Fig. 1.—Bladder and ureters distended with 20 per cent. argyrol. Note cap at bladder outlet.

had no illness since the measles. His appetite was fair. His digestive tract seems to have always been in good condition. His family history proved to be irrelevant. There was nothing from this source to be connected with the condition preseneted.

The boy was undersized, though, with the exception of some pallor, of generally healthy appearance. The pupils were large, equal, and contracted to light. The tongue was clean, the lymph glands just palpable. A systolic murmur without

Fig. 2.—Large right pyonephrosis. Twenty per cent. argyrol permitted to gravitate from bladder to kidney.

demonstrable anatomic significance was present at the apex. The thoracic organs otherwise presented no evidence of abnormality. The reflexes were present and normal.

Extremely interesting features were disclosed on examination of the abdomen. It is to be regretted that no photograph was taken. As the boy stood, the abdomen was conspicuously protuberant and asymmetrical. The left loin was decidedly bulging, the right preserving its concavity. Below, in the hypogastric region, there was a prominent rounded swelling extending several inches on both sides of the midline. When the boy was placed on his back, the cause of the bulging in the left flank was found to be a uniform, soft, smooth mass dipping beneath the ribs in the left hypochondrium, while below it passed downward and inward until lost beneath the rectus about the umbilicus. Below, adjacent to it in the hypogastric region, there was a soft, yielding mass about 3 inches in diameter, rather definite, giving a tympanitic note on percussion and showing on its surface irregularities suggestive of the pattern of intestinal coils. Passing then directly across the midline from this lower mass there was a broad, shallow depression corresponding to the linea alba, and again on the right there was an elevation similar to that on the left, but smaller and less conspicuous. There was no tenderness anywhere except in the left lumbar region, especially when pressure was made at the costovertebral angle. Nothing could be palpated in the right flank.

The external genitalia showed no abnormality. The urine was very turbid and contained a heavy sediment of pus, some organisms (probably *B. coli*), no casts and no red cells.

Under ether anesthesia the bladder was readily catheterized without the slightest evidence of urethral obstruction. It contained 16 ounces of residual urine. Emptying the bladder caused the complete disappearance of the swelling in the hypogastric region. After irrigating three quarters of an hour, a cystoscope (18 F.) was easily passed, but the bladder contents became so rapidly clouded that it was

1. Yergason, R. M.: A Screw Tractor for Use with Thomas' Splint, J. A. M. A. 74: 886 (March 27) 1920.

impossible to distinguish a single anatomic feature. Cystoscopy was therefore futile. Indigocarmin was injected intragluteally. In half an hour there was not a trace of the drug.

The examination thus far having disclosed but little of the actual condition, while still under anesthesia 4 ounces of 20 per cent. argyrol were injected into the bladder. The boy was then kept in the extreme Trendelenburg position three or four minutes, when pictures were taken of the pelvic and both renal regions. These disclosed, as shown by the accompany illustrations, a dilated bladder with smooth outline, a well demonstrated, tortuous hydro-ureter (Fig. 1), and advanced pyonephrosis (Fig. 2) on the right side. Unfortunately, the argyrol did not penetrate the left ureter as well as the right, resulting in only a faint shadow, but nevertheless showing the same condition as on the right. The left renal region showed no shadow. However, there was no doubt about pyonephrosis existing on this side, as the large tumor in the loin was almost as distinctly visible as it was palpable. At the bladder outlet there was a small button-like cap (Fig. 1) which may be considered the dilated posterior urethra. Is so, then by comparison with the illustrations accompanying the recent article by Young, Frontz and Baldwin,[1] the obstruction must be proximal to the colliculus.

Directly after the examination, the boy was taken back to his home in the country. All efforts to learn the subsequent course of events have been futile.

COMMENT

The case here described is apparently one of congenital membranous valve formation in the posterior urethra. The valve being cup-shaped with its concavity toward the bladder readily permits the passage of instruments without hindrance, but, on the other hand, obstructs the free flow of urine toward the exterior, thus causing those changes in the upper urinary tract which are well known to be associated with impediments to the stream.

1018 Head Building.

A METHOD OF OBTAINING DIRECT CULTURES FROM INTESTINAL ULCERS IN INFANTS AND YOUNG CHILDREN *

RALPH C. SPENCE, M.D., AND STAFFORD MCLEAN, M.D., NEW YORK

A modified Yeoman proctoscope, 8 inches long and ½ inch in diameter, has been found satisfactory for obtaining direct cultures from intestinal ulcers in infants and young children

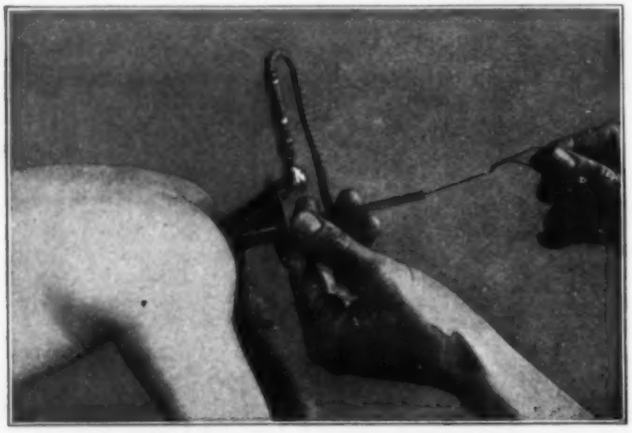

Fig. 1.—Posture of child during examination.

with dysentery. With the proctoscope is used a sterile glass tube 12 inches long and ¼ inch in diameter. In this tube there is placed a stiff wire 2 inches longer than the tube, on the distal end of which there is a small cotton swab.

The proctoscope is introduced and the ulcer located. The distal end of the glass tube is placed over the ulcer, and the cotton swab is gently brought in contact with the ulcer. The swab is then withdrawn into the glass container in order to prevent contamination, and the tube containing the swab withdrawn. Melted agar is inoculated from the cotton swab and poured into Petri dishes.

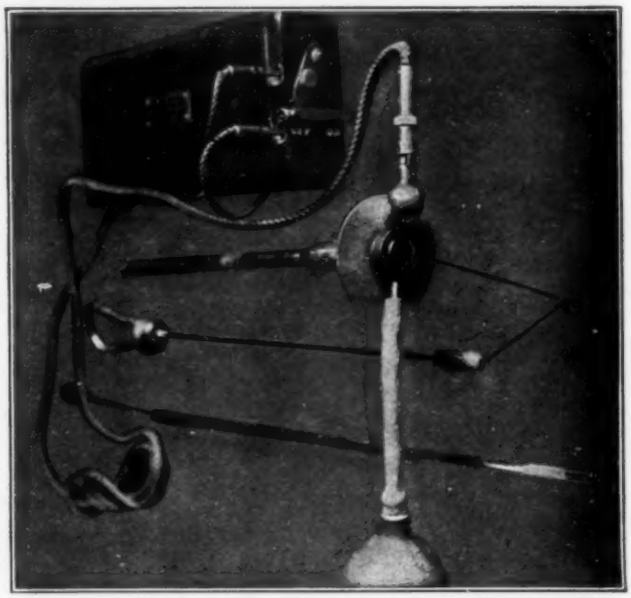

Fig. 2.—Complete outfit: *A*, proctoscope; *B*, glass tube, containing swab.

Even young infants show little or no signs of discomfort during a proctoscopic examination. It is a relatively simple procedure to secure a culture directly from an intestinal ulcer by this method.

Proctoscopic examination is of great value in differentiating ulcerative from nonulcerative types of colitis. It has been found at the Babies' Hospital that an earlier bacteriologic diagnosis can be made by direct culture from the lesions than by the customary stool cultures. Data are being obtained relating to various phases of bacillary dysentery which will be subsequently published.

The Babies' Hospital—135 East Fifty-Fifth Street.

1. Young, H. H.; Frontz, W. A., and Baldwin, J. C.: Congenital Obstruction of the Posterior Urethra, J. Urol. 3: 289 (Oct.) 1919.

* From the Babies' Hospital.

REPORT OF CASE OF MULTIPLE NEOPLASTIC TUMORS *

SANFORD WITHERS, M.D., AND L. J. OWEN, M.D., ST. LOUIS

There have been occasional reports of the coexistence of different types of neoplasms in the same patient, but we believe this condition to be of more frequent occurrence than is commonly supposed. It is our intention as time permits to record the number of cases that have been in this hospital. The present article is a report of the most interesting of these cases.

REPORT OF CASE

A white woman, aged 28, not married, born in England, of Jewish descent, previous to transferal from St. Louis City Hospital to Barnard Hospital had been in State Hospital No. 1, where she had had an operation for tumor of the breast. She was mentally deficient.

On admission to Barnard Hospital there was a tumor mass in the right side of the face which was diagnosed as sarcoma of the right antrum. There was a smaller nodule on the outer part of the superciliary ridge, which was apparently a carcinoma. The right orbit was involved in the sarcomatous growth. Both breasts contained multiple firm nodules, and both nipples were retracted.

* From the Barnard Skin and Cancer Hospital.

Microscopic study of the tissue removed at operation proved it to be giant cell sarcoma, containing many multinuclear giant cells, with a dense stroma of spindle shaped connective tissue cells. It had invaded the antrum. The tumor at the right superciliary ridge was a carcinoma of the basal cell type.

The patient was unable to withstand the operation for removal of the facial sarcoma, and died on the second day following operation.

At necropsy there were found present, other than the two mentioned above, five types of neoplastic tissues. Section of the breasts revealed bilateral multiple, intracanalicular adenofibromas. The left lobe of the thyroid gland was enlarged, and at microscopic study fetal adenoma was diagnosed. At the level of the suprasternal notch there was a multilocular cyst apparently not connected with the thyroid gland, and of doubtful origin. The lining of the cyst was a low cuboidal epithelium, and a few polymorphonuclear cells were seen in this tissue.

The ovaries were bilaterally cystic, nearly all ovarian tissue having been destroyed in the process. There were a large number of uterine myomas present, and microscopic study of this tissue revealed the usual structure of the fibromyomas.

The case is of interest as showing precocious senile changes in a person much below the age at which these changes are usually seen. There were simultaneously present seven types of neoplasms.

TWO CASES OF HYPERTROPHIC CIRRHOSIS OF THE LIVER IN THE SAME FAMILY

ARRIE BAMBERGER, B.S., M.D., CHICAGO
Associate in Surgery, University of Illinois College of Medicine

These two cases of hypertrophic cirrhosis of the liver occurred in two brothers. The children in question were born two years apart. No children were born in the interval, but there were three children previous to the older of the two, and five subsequent to the younger one.

Both the mother and the father are of German extraction. The mother's age at present is 44, and the father's 46 years. Both deny any symptoms of venereal disease at any time. The mother has had ten children, all healthy except these two. She denies any miscarriage. At one time the father was a steady drinker, but at no time could he be classified as a drunkard. The family history of both father and mother reveals no disease of the liver.

CASE 1.—The first boy I did not have under my observation; but the parents were informed that the diagnosis was hypertrophic cirrhosis of the liver, and the symptoms were similar to those of his brother, whom I had under observation. He began to show symptoms when he was 10 years old, and his symptoms as told me by the parents were enlarged abdomen, jaundice, and hemorrhage from the mucous surface during the terminal part of the disease. He died three years after the onset of the symptoms.

CASE 2.—*History.*—This patient I had under observation for about five months previous to his death. He was healthy up to the time he was 11 years old, when his abdomen started to enlarge and jaundice appeared. He came under my care when he was 16 years old because of the fact that operation was advised on account of a very hard mass that was in the epigastrium. Jan. 29, 1920, when I first saw the boy, he was undernourished and markedly jaundiced. The temperature was 98.2, and the pulse 80. A mass movable in respiration, very hard, with sharp borders, somewhat nodular surface, and not tender, extended from the right hypochondriac region over the median line to the region of the left hypochondriac region. No ascites was present. The spleen was enlarged and soft. There was no adenopathy, and no symptoms of congenital syphilis. The patient complained only at night of pain in the epigastrium. Laboratory findings revealed a mild secondary anemia, normal leukocyte count, and bile, albumin and casts in the urine. A blood Wassermann test was +.

Treatment and Course.—With a + Wassermann reaction and two children in the same family with similar conditions, I thought it wise to put the patient on antisyphilitic treatment. He was given daily inunctions of 30 grains of mercurial ointment, 60 grains of potassium iodid three times a day by mouth, and an intramuscular injection of one-fifth grain of mercuric chlorid twice a week. No arsphenamin was given because of the kidney condition. He began to gain in weight, and felt much improved in general within several weeks after he was on this treatment; and within five weeks, his weight had increased from 96 to 105 pounds. The jaundice became less, and the liver enlargement diminished slightly. June 9, he began to feel bad in general, and gradually grew worse until death occurred, June 18. His symptoms during the nine days were those of an acute endocarditis and lobar pneumonia, together with hemorrhages from the gums and mouth.

Postmortem Findings.—I performed a partial postmortem, that is, I was given permission to examine only the abdomen. In the abdomen there was no free fluid. The liver was found in virtually the same position as was outlined during life. It was somewhat nodular, greenish yellow on the surface and cut section, and quite firm. Its weight was 50 ounces. The gallbladder was dilated. There were no stones in the bile tract. The spleen was soft and much enlarged, weighing 26 ounces. The stomach and intestine were negative; there was no glandular enlargement. Dr. Carl Ireneus, who made a microscopic examination of the tissues, reported that the liver was one of hypertrophic cirrhosis, and the spleen showed only marked congestion.

Conclusions: The parents refused to have a Wassermann test made on their blood, but in spite of this rather indefinite evidence, I am inclined to believe that possibly syphilis was the cause of these two cases, as the patient improved under antisyphilitic treatment, but not to the extent of a complete recovery, because of the long duration of the disease before treatment was instituted. Another fact that points to the possibility of syphilitic origin is that two children born in succession should have the same condition, while all children born before and after were healthy, which could be explained on the basis of the parents having contracted syphilis just before the birth of the first of the affected children, transmitting it to the offspring until after the second of the affected children was born, when time had so attenuated the infection that subsequent children were not affected.

Another possible explanation of the etiology of these two cases may be the alcoholism of the father, who admits having drunk more during the three years previous to the birth of these children than either before or after that time.

4304 Grand Boulevard.

A MODIFICATION OF HARRISON'S TREATMENT FOR RINGWORM OF THE NAIL

ANDREW L. GLAZE, M.D., BIRMINGHAM, ALA.

Harrison advises scraping the nail, and then applying on lint for fifteen minutes one part of potassium iodid in eight parts of a 50 per cent. solution of potassium hydroxid. Afterward, mercuric chlorid, 1 per cent. in equal amounts of alcohol and water, is kept in contact for twenty-four hours.

In most cases it is difficult to scrape away the roughened nail, and the application on lint of the potassium preparation has certain disadvantages. By the method described below, the remedy is confined to the plate and matrix, and the horny tissue is easily removed.

If the finger-nails are to be treated, the patient grasps a towel-covered book so that the parts are supported in a horizontal plane. Petrolatum is generously banked about the nails in such fashion that each forms the bottom of a little lake. These are half filled with Harrison's potassium solution, and the softened plate is scraped through the fluid.

The after-treatment with mercuric chlorid sometimes causes severe dermatitis. In its place, I have used with safety, and relative satisfaction, a saturated solution in water of sodium thiosulphate (hyposulphite). It is applied on absorbent cotton, under a rubber finger-stall, six hours or longer, daily, for three days.

503 Empire Building.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Five dollars per annum in advance

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SATURDAY, SEPTEMBER 11, 1920

THE EVOLUTION OF THE PROTEINS

Proteins, the most complex of organic substances, occur only in association with living matter. The evolution of life is synonymous with the evolution of proteins. What have been the steps by which these giant molecules have been evolved, and why are proteins so similar to one another, or, on the other hand, why is there more than one kind of protein? Have there been proteins simpler than those we now know, or essentially different, in the past history of life on this earth? Much consideration has been given in the past to the study of the evolution of anatomic structure. Now that we know something of the chemical structure of animal tissues, may we not begin to consider with profit the problem of how this chemical structure arose, with its remarkable similarity in all forms of life and its equally specific differences in different forms of cells even in the same species of plant or animal? An introduction to this phase of evolution has been presented in a thoughtful paper by E. L. Kennaway [1] of London.

The number of different amino-acids that enter into the formation of proteins is limited; but as there are about seventeen commonly found, the possibility for variation by various combinations and arrangements is virtually unlimited. Nevertheless, there is a remarkable and as yet unexplained variety of amino-acids; for while some are structurally very simple straight chains, such as glycin and alamin, others are benzene ring compounds, like tyrosin, and others have other types of ring structure, namely, pyrrol, indol or imidazol rings. Why should the proteins that have been evolved possess so great a variety of amino-acids, and why is it that none of the other related amino-acids except these seventeen are found in proteins or elsewhere in nature? How are we to account for the fact that proteins usually contain amino-acids that contain two, three, five or six carbon atoms, whereas four carbon amino-acids are not found? In the study of morphologic evolution it is customary to turn for light to simple forms in the scale of development, since the individual in its development recapitulates the development of the species. Kennaway applies the same principle when he compares the chemical structure of proteins from mammals, protozoa, yeasts, molds and bacteria; but it seems that the chemical structure of the unicellular organisms is not so much simpler than that of more complex forms as is their morphologic make-up. This, however, is to be expected, since the chemical structure of unicellular organisms is fully as complex as that of the individual cells of multicellular creatures, if not more so. In the yeast, the mold and the five bacteria that have thus far been analyzed, virtually all the known amino-acids of animal and plant proteins have been found, with the exception of the sulphur-containing cystin. Apparently, then, "the simplest organisms now existing do not contain a series of amino-acids any more primitive than that present in the higher organisms, except perhaps as regards the inclusion of cystin. One may suppose that the present apparently stereotyped series of utilizable amino-acids represents the stable outcome of a struggle long ago among simple organisms in which those which made a less suitable choice were beaten and have passed away, leaving no trace. We cannot know the biochemistry of the first organisms which appeared on the earth; the experiments and discarded compounds of that time are lost. The selection of amino-acids must have taken place at an immensely remote period, for the earliest records which we have of the forms of life on the earth do not show us organisms which have any appearance of noteworthy difference in chemical composition from those which exist at the present day. The doctrine of natural selection gives the impression that evolution proceeds throughout in a very gradual manner. But at the time when the amino-acids were first being produced and tested, organic evolution must have proceeded very distinctly per saltum as each new compound was synthesized; natural selection would then act slowly and surely upon the organisms which made one or another choice, and thus the present series of amino-acids was delimited."

Nor can we learn the history of protein evolution by studying the steps by which the proteins are synthesized at the present day. All the amino-acids of animal proteins are synthesized by plants and bacteria; for although some experimental work suggests the possibility of a slight capacity to synthesize amino-acids or proteins by animals, yet the results indicate even more strongly that this capacity is at the best very limited and of little or no significance as a usual source of proteins. Furthermore, no single amino-acid has ever been found in animals that is not present in plants. Bacteria and plants can synthesize proteins from extremely simple inorganic salts; but the intermediate steps cannot be followed, for the entire process is completed very rapidly and without demonstrable quantities of intermediates accumulating. Thus, a multiplying yeast cell growing on simple mediums

1. Kennaway, E. L.: Notes on the Evolution of Proteins, Chemical News **120**: 13, 1920.

produces an entire new cell from inorganic salts in a few hours, and bacteria accomplish this marvelous synthesis still more rapidly. In the time taken by a yeast cell to produce another by budding when growing on a medium such as Pasteur's, containing no nitrogen but that of ammonium tartrate, it must synthesize each one of the amino-acids given for yeast and combine them as a series of polypeptids until its proteins are produced, and all the while carry on many other chemical operations. Even when one takes into account the small size of molecules, it is wonderful that so many reactions can be kept apart within the compass of a yeast cell. "One may compare with the obvious growth of yeast the amount of experimental procedure required to bring to light the partial synthesis of a single amino-acid in a mammal and realize what has been lost in the course of evolution. Specialization is largely a process of loss of capacities; some zoological teaching has perhaps represented it too largely as a progressive development."

COMMENTS ON CANCER

There are various ways in which the understanding of a problem in almost any domain of science may be obscured to the average person. The knowledge involved may be so recondite, and the logical interpretation so subtle, that few are competent to master them. This has been said of the Einstein theory of relativity, which has been so often mentioned and so rarely understood. Again, a problem may involve the possible interaction of many factors, each of which may vary independently in influencing the result. An untrained student is liable to fix his attention on a single variable, thereby forgetting the perhaps equally potent contributory features that determine the phenomenon he is attempting to interpret. We suspect that the latter tendency has helped to introduce seemingly insuperable difficulties into the cancer problem, which has so often been approached along a "single track" road.

It would certainly be thought rash by many—indeed, it would be rash—at the present time to formulate a new theory of cancer. But so long as numerous laboratories are engaged in cancer research and several journals, published in different parts of the world, are devoted exclusively to the publication of results achieved in this field of study, physicians may well pause now and then to listen to a summary of what has been brought to light. It is in a spirit of such interest that we venture to refer to a recent review by Leo Loeb [1] of the Washington University School of Medicine at St. Louis. He points out that many factors may enter as causes of cancer, if the latter is looked on as an abnormality of growth, without direct reference to any further "theory." There can be little doubt that external stimulation of a mechanical and probably also a chemical nature may be significant in the origin of cancer. Clinical histories and experimental findings point to this possibility. Internal chemical stimulation is likewise something to be considered in the chapter on etiology, although the inclusion of internal secretion and hormones in the category of causes is still quite as full of vagueness as is much of the pure speculation on the malfunction of the ductless glands. Heredity can no longer be ruled out as it was only a few years ago. There is less doubt, today, of the existence of a hereditary factor in the origin of cancer in mice; and Loeb, who well recognizes the present almost universal opposition to the acceptance of comparable hereditary influences in human cancer, points out that intermarriage and other agencies may tend to obscure the truth. He reminds us of the well established fact that various conditions which predispose to cancer are hereditary, such as pigmented nevi; the same thing holds good in the case of other hereditary abnormalities. Taking into consideration all these facts, Loeb says, we may consider it probable that heredity is also a factor in the origin of human cancer, but that in the latter interbreeding and perhaps other factors have obscured this significance of heredity. Loeb concludes, further, that in all probability the character of hereditary factors is not different from other causes leading to cancer. They seem to consist in the presence or absence of chemical or mechanical growth stimuli which originate within the organism, and which, while in themselves often not able to produce cancer, do so if combined with other growth-promoting factors. We must include in this category conditions which make tissues receptive, sensitizing them to the action of mechanical or chemical growth stimuli.

The possible influence of disturbances of embryonal development whereby, for example, a changed environment may supply the stimulus which is needed in order to increase and prolong the proliferation and migratory energy of embryonal cells, has frequently been discussed. The unusual incidence of tumors with advancing age likewise is not unknown. It is not unlikely that contact of normal tissues with cancerous tissue may cause the transformation of the former into cancerous tissue. As for the much debated rôle of micro-organisms, Loeb regards it as possible that while in the majority of cancers often repeated stimulation of tissues leads to a long continued or even perpetual increase in the intensity of those metabolic processes which cause cell proliferation and cell movements, in certain sarcomas the same effect is produced through a constantly acting extraneous chemical growth stimulus, supplied by micro-organisms and not, as in the case of the majority of cancers, through the metabolism of the cancer cells themselves. As a

1. Loeb, Leo: Causes and Definition of Cancer, Am. J. M. Sc. **159**: 781 (June) 1920.

suggestive summary of a present-day view, we may quote Loeb's own words:

> All the factors which in various ways either by chemical or physical means increase the proliferative energy of cells may act as causes of cancer; these conditions are not different from those growth stimuli which lead to regenerative and what might be called correlative growth in normal tissues; added to these factors are in certain cases factors residing within the cells, which make these cells more responsive to outer growth stimuli, thus providing a sensitization which in other cases is furnished by sensitizing substances carried to the cells from other organs. In order to lead to the formation of cancer in many cases several of such factors must cooperate. Some of these factors are hereditarily transmitted in a certain graded quantity from generation to generation, while the other factors are variable and extraneous. All these factors have one characteristic in common: They all increase the growth energy of normal tissues either directly or indirectly, the latter by sensitizing the tissues to the action of growth stimuli.

TETANY FOLLOWING FORCED RESPIRATION IN MAN

In a recent issue of THE JOURNAL [1] the possible relationship of chemical factors to the genesis of certain types of tetany was discussed. This phenomenon occurs under so many circumstances that the possibility of a varied etiology must be reckoned with. In their fundamental studies on parathyroidectomy and the tetany which follows it, Wilson, Stearns, Thurlow and Janney [2] of the Johns Hopkins Medical School pointed out that just before the attacks a condition of "alkalosis" develops which is neutralized by the acid products generated by the tetanic contractions of the musculature.

Various investigators have observed in the past that spasms and muscular twitchings may follow voluntary overbreathing. Recently Grant and Goldman [3] of the Washington University Physiology Department at St. Louis have clearly demonstrated that forced respiration may cause symptoms of tetany to appear in the human subject. The indications are the carpopedal spasm, Chvostek's sign, Trousseau's sign, Erb's sign, and even convulsions. In these cases the underlying factor in the tetany is undoubtedly an alkalosis. The forced respiration, by washing out carbon dioxid from the lungs, reduces the content of this substance in the blood whereby the latter tends to become more alkaline than usual. This is shown by the altered hydrogen ion concentration, which shifts toward the alkaline side, although readjustment in the equilibrium quickly takes place through excretion of alkali, neutralization by acid products and diminished excretion of ammonia. Just as shivering produces heat when the temperature regulation of the body is threatened by cold, apparently the tetanic movements produce acid products which tend to compensate increased alkalinity of the blood until the kidneys can complete the readjustment.

Clinically, it is interesting to recall that cases of tetany have been reported to follow liberal therapeutic administration of sodium bicarbonate. The symptoms have also been described in connection with surgical operations in which overventilation has perhaps occurred in the course of the anesthesia. The danger of this respiratory overwork has been asserted by several anesthetists, notably Yandell Henderson and his collaborators, though the symptoms emphasized have been those of circulatory shock rather than tetany or spasm. Admitting the identity of the symptoms of tetany and those following forced breathing or unconscious overventilation of the lungs, the significance of the chemical factor, expressed in an alkalosis, can no longer be questioned. Whether the result is due merely to the upset of the acid base equilibrium in the body or whether the much discussed calcium deficiency is a contributory consequence cannot be profitably discussed at present.

1. Nervous Irritation and Tetany, Current Comment, J. A. M. A. **75**: 481 (Aug. 14) 1920.
2. Wilson, Stearns and Thurlow: J. Biol. Chem. **23**: 89, 1915. Wilson, Stearns and Janney: Ibid. **23**: 123, 1915.
3. Grant, S. B., and Goldman, A.: A Study of Forced Respiration: Experimental Production of Tetany, Am. J. Physiol. **52**: 209 (June) 1920.

THE SPLEEN IN YOUTH

It is not surprising that a large, conspicuous organ like the spleen should awaken many reflections regarding its probable function in the body. That the spleen is by no means indispensable is attested not only by the experimental evidences of splenectomy in animals but also by the records of surgical removal of the organ in man. Nevertheless, the mere fact that the individual can survive the extirpation of a tissue by no means demonstrates that it is useless. The possibility of a compensatory functioning or hypertrophy of other structures must be kept in mind. In the case of the spleen it must be frankly admitted that, with the possible exception of certain hematopoietic activities, investigations have thus far not been successful in relating the organ to any important physiologic performance that cannot be equally well undertaken in the absence of the splenic tissue.

Most of the scientific studies on the removal of the spleen have been conducted on adults. The experience with other familiar glands suggests that the value which any of them have for the organism may vary at different periods of development. The fact that the spleen of the young is heavier, in proportion to body weight, than the spleen of the adult has been taken as a suggestion that the organ may have a superior rôle in the adolescent period. An answer to the question thus raised has been furnished by Henn,[1] at the University of Chicago. Taking growth as the foremost index, he agrees with other investigators in the demonstration that animals from which the spleen has been removed develop in an apparently

1. Henn, S. C.: The Effect of Splenectomy upon Growth in the Young, Am. J. Physiol. **52**: 562 (July) 1920.

normal manner. As splenectomy thus has a negligible influence on growth, at least in the species heretofore investigated, there is no reason to assume that the spleen is essential to the life of the young.[2]

Several years ago it was reported by Karsner and Pearce [3] that the red blood corpuscles of adult animals that have been splenectomized are noticeably resistant to hypotonic salt solutions. Henn has found that this phenomenon occurs likewise in the case of the same species splenectomized at an early age. Histologic examination has led to the belief that the spleen is functionally related in some way to the blood. Henn's studies substantiate this by the evidence that in the young, too, after removal of the spleen there is an increase of Kupffer cells in the liver, and changes in lymph glands and bone marrow that indicate a compensatory function on the part of these tissues in supplying a missing factor in blood formation and destruction.

RELATION OF FEEDS AND DIET TO THE VITAMIN CONTENT OF MILK

So far as is known at present, the mammalian body does not exhibit the power of synthesizing those vitamins regarding which dependable information is available. Since, therefore, the higher organisms seem to be dependent on their food intake for an adequate supply of the recently recognized indispensable dietary ingredients, the make-up of the ration with respect to the latter acquires a new significance in practical nutrition. The so-called water-soluble vitamin, sometimes termed water-soluble B and held to be identical with the antineuritic vitamin which plays a dominant part in relation to beriberi, is comparatively stable toward ordinary processes of food conservation and culinary preparation. The same thing is probably true of the fat-soluble vitamin as it occurs in foods. On the other hand, the antiscorbutic properties of foods are in many instances greatly impaired by relatively slight manipulations involving heating and drying. Pasteurization of milk, which certainly cannot be rated as severe treatment, is known to deprive this product of its antiscorbutic potency.

If, as it is reasonable to conclude, lactating animals merely transmit in their milk the antiscorbutic vitamin which they are able to derive from the feeds, a consideration of the latter in relation to the physiologic value of milk is assuredly not out of place. The question at issue is whether the diet of the milk-producing animal may be a factor in the relative antiscorbutic potency of the milk produced. Hart, Steenbock and Ellis [4] of the University of Wisconsin have given a decisive answer, since they have found that summer pasture milk is much richer in this nutritive factor than dry feed milk or winter-produced milk, involving a ration of corn silage or even sugar mangels. This discovery emphasizes anew the uncertainty of depending on milk under all circumstances for an adequate supply of antiscorbutic vitamin.

Osborne and Mendel [5] have recently found little if any difference in the content of water-soluble (B) vitamin in milk produced, respectively, under winter feeding and summer pasture feeding conditions. Winter feeds are for the most part made up of dried products which have sacrificed most of their antiscorbutic power. But the Wisconsin investigators point out that the observations of Osborne and Mendel are not surprising in view of the fact that the vitamin with which the latter were concerned differs from the antiscorbutic factor in being relatively stable and therefore probably not destroyed during the drying and storage of farm winter crops. If the suspicion of Steenbock that the fat-soluble vitamin is generally associated or identical with certain yellow pigments of plant tissues proves to be well founded, we may expect that concentration of this vitamin in milk will also be related to its varying concentration in the diet.

2. Compare Mann, F. C.: Endocrinology **3**: 303, 1917.
3. Karsner, H. T., and Pearce, R. M.: J. Exper. Med. **16**: 769, 1912.
4. Hart, E. B.; Steenbock, H., and Ellis, N. R.: Influence of Diet on the Antiscorbutic Potency of Milk, J. Biol. Chem. **42**: 383 (July) 1920.
5. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **41**: 549, 1920.
6. Moulton, C. R.: Biochemical Changes in the Flesh of Beef Animals During Underfeeding, J. Biol. Chem. **43**: 67 (Aug.) 1920.

Current Comment

THE STRUCTURE OF MUSCLES

From the standpoint of the location of protein, the muscular tissue is undoubtedly more important than any other structure in the body. It is not only rich in albuminous material but also endowed with a remarkable morphologic composition which adapts it to the function of contractility and performance of mechanical work. For this reason alone the behavior of the muscle tissue under unusual nutritive stringency becomes of great interest. It is generally taught that losses of muscle cells in toto by injury cannot be replaced by regeneration of the latter in the same way in which epithelium is restored. Whether, during the depletion of muscle tissue that evidently attends malnutrition and complete or even partial starvation, an actual disintegration and permanent loss of contractile structures occur has not been decisively demonstrated. Suggestive contributory evidence has been furnished by Moulton [6] of the University of Missouri, who has carefully studied the histologic as well as biochemical changes in the muscles of beef animals during underfeeding of varied degree. Despite large losses of protein, no evidence was found of a disintegration, structurally speaking, of the muscles. The possibilities for change in size or volume of the structures were shown to be stupendous; but since the very thin fibers still functioned as a muscle, Moulton argues that their "vital structure" must remain intact. A further deduction is that the muscles can store an enormous amount of material both intercellularly and intracellularly. Part of this deposit has long been recognized as fat

and glycogen; it now seems likely that the muscles can act as a storehouse of protein also to an unexpected extent.

THE SIGNIFICANCE OF PHOSPHATE RETENTION

In the regulation of neutrality within the organism, a process essentially physicochemical in nature, the interaction of bases with acid, notably carbonic and phosphoric acids, and the amphoteric proteins is of paramount importance. Further readjustments may involve the excretion of the acids, carbonic acid being eliminated by the respiratory path and phosphoric acid through the renal functions. It is obvious that the failure of the latter might embarrass the organism by causing an undue retention of acid products, notably acid phosphate. The studies of the last few years in the chemistry of the blood have indicated clearly that much light may be thrown on the diagnosis and prognosis of kidney disease by investigation of possible retention of metabolic products which are usually excreted in the urine. It has also become apparent that equal significance is not to be attached to the behavior of the different catabolites in this respect.[1] Thus, uric acid accumulates with far less renal provocation than does creatinin, for example. The determination of the significance of phosphate retention has awaited further accumulation of data. To those already secured by Greenwald [2] and by Marriott and Howland,[3] the latest findings of Denis and Minot [4] of the Massachusetts General Hospital may now be added. The latter suggests the possible prognostic importance of the estimation of inorganic phosphates in the plasma of persons suffering from nephritis and allied disorders. More than half of the nephritic and cardiovascular cases examined in the hospital wards at random gave unmistakable evidence of retention. Fatal cases showed a rapid and progressive increase in plasma phosphate, increments of more than ten times the normal average values having been noted. In the nonfatal cases, however, only relatively slight increases seem to occur.

"HAIR FOOD"

Last week in discussing the hydrolized keratin substance prepared by Zuntz, THE JOURNAL expressed doubt of the proposal that this substance would prove to be a true stimulant to hair growth notwithstanding that Zuntz was a well known physiologist and that any suggestion which he made should be taken seriously. It may be remembered that Zuntz tried his substance first on himself and claimed that a daily dose of from one to one and a half grams caused an increased growth of hair. The substance was also used on sheep, and the observers claimed to have demonstrated that the diameter of the individual wool fibers increased one third. As might have been expected, the substance promptly became the subject of commercial exploitation in Austria and Germany under the name "Humagsolan." Fuhs [1] and his associates in the university clinic for dermatology and syphilology in Vienna decided to make a clinical test and used this proprietary preparation on seventeen patients, including two women and fifteen men. In general the effects seemed to be negative. Fuhs concludes that his experiments have not confirmed the results of Zuntz and his co-workers. It will be interesting to observe whether or not the negative results of Fuhs will cause the proprietary concern to discontinue the promotion of Humagsolan. Physicians who know the history of proprietary medicines will be rather dubious as to the possibility of such an occurrence.

FEE-SPLITTERS

There is little new to be said on the subject of fee-splitting, but in an editorial just published in the *Journal* of the Medical Association of Georgia, Dr. E. C. Thrash says some of the old things in a new way. He classifies fee-splitters into three types: innate crooks; impecunious young men who resent the fact that much work goes to older men who are their inferiors in ability, and men who do not fully comprehend the heinousness of the offense. Class 1 he considers unreclaimable; such men, he says, would even take an oath not to split fees and then continue the practice. Men in Class 2 reform when they become more prosperous, and Class 3 is made up chiefly of men who do not analyze the ethics of fee-splitting, considering only that they have performed service and are getting their due. The appeal is made to young men that they bear a little more sacrifice and have the satisfaction of looking back on a career wholly honorable. Class 3 is asked to recognize the value of honest service and to collect a fee for it openly. The man with a conscience needs no better guide.

1. For a recent review of the subject consult the series of papers by Myers, V. C.: Chemical Changes in the Blood in Disease, J. Lab. & Clin. Med. **5**, 1920.
2. Greenwald, I.: J. Biol. Chem. **29**: 21, 1915.
3. Marriott, W. McK., and Howland, J.: Phosphate Retention as a Factor in the Production of Acidosis in Nephritis, Arch. Int. Med. **18**: 708 (Nov.) 1916.
4. Denis, W., and Minot, A. S.: A Study of Phosphate Retention from the Standpoint of Blood Analysis, Arch. Int. Med. **26**: 99 (July) 1920.

1. Fuhs, Herbert: Concerning the Advantages of Zuntz' Hair Growing Substance "Humagsolan," Wien. klin. Wchnschr. **33**: 707 (Aug. 5) 1920.

Ancient Beliefs and Infant Feeding.—Reporting on infant welfare work at Carlisle, Dr. Joseph Beard writes: "Old ideas in connection with infant feeding are difficult to eradicate, and I am convinced that more infants are killed annually by kindness in the form of overfeeding than by the want of adequate nourishment. Undoubtedly most of the diarrhea and many of the deaths due to wasting and convulsions originate primarily in ignorance with regard to the correct methods of infant feeding, yet in spite of the education given by schools for mothers, home talks by health visitors, professional advice and press propaganda, mothers persist in following improper methods of feeding. In no branch of preventive medicine is progress so seriously retarded by ancient beliefs as in connection with the rearing of babies. It is the experience of those concerned in infant welfare work that very often after carefully explaining to a young mother the correct method of infant feeding the grandmother or a neighbor makes the statement that she knows how to feed a baby, having fed so many, but in most instances she omits to relate how many babies have been sacrificed as a result of the method."—*Med. Officer*, Aug. 14, 1920.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Los Angeles County Society Picnic.—The Los Angeles County Medical Association holds its annual picnic at Sunland Park, September 11.

Nurses' Home Completed.—A new nurses' home for the Los Angeles County Hospital has just been completed at a cost of $250,000. The home is built on the cottage plan, the building being located within the hospital grounds but separated from the hospital building and away from the hospital atmosphere. The home comprises twelve cottages, half of the rooms of which are single and the other half double. There is a recreation building with reception rooms, office and quarters for the matron.

CONNECTICUT

Personal.—Mr. Friend Lee Mickle, bacteriologist of the bureau of laboratories of the state department of health, has been appointed director of laboratories for the bureau of health of Atlantic City.——Dr. Thomas Eben Reeks has resigned as acting superintendent of health of New Britian.——Dr. Joshua M. Slemons, professor of obstetrics and gynecology in Yale University School of Medicine, New Haven, has resigned and will be succeeded by Dr. Arthur H. Morse.

FLORIDA

Rat Slaughter at Key West.—As a result of the rat survey at Key West 2,181 rats have been caught and examined, and none have been found to be infected with bubonic plague.

Diagnostic Hospital Opened.—Dr. Marvin Smith's Sanitarium and Diagnostic Hospital has recently been completed and opened to the public. The building is three stories high with forty rooms and the cost of building and equipment amounts to $80,000. The staff of the hospital will include about twelve specialists.

GEORGIA

Personal.—Drs. Henry L. Levington and Lloyd B. Taylor were elected city physicians of Savannah, August 11.——Dr. Fannin S. Belcher has been reappointed colored city physician of Savannah.

Old Southern Mansion Changed into Hospital.—The old mansion built by Dr. Ambrose Baber in 1829 at Macon, one of the landmarks of Georgia's history, has been purchased with the idea of converting it into a hospital.

Battey Memorial.—The medical fraternity of Georgia, especially the physicians residing in or near Rome, have inaugurated a movement for the erection of a suitable memorial to the late Dr. Robert Battey, whose life was spent in Rome and whose activities centered around that section of Georgia.

ILLINOIS

Personal.—Dr. William K. Murray, Chicago, has been appointed chief medical officer of the health department of Canton, Ohio.

Chicago Medical Post Meeting.—The Chicago Medical Post of the American Legion will hold a luncheon at the Army and Navy Club, City Hall Square Building, Chicago, September 16, at noon, to discuss plans for the winter activities of the post.

Fellowship Club Meeting.—The Physicians' Fellowship Club held the opening meeting of the session of 1920-1921, September 3, at which former governor Charles S. Deneen spoke on "Why Physicians Should Aspire to Public Office," and Dr. Harry R. Hoffman on "Why the Coroner Should Be a Physician."

North Side Branch Field Outing.—The North Side Branch of the Chicago Medical Society will hold its field day outing, September 15, at St. Mary's Training School near Des Plaines. The automobile route from Chicago is by way of Milwaukee Avenue and the turning places will be designated by American flags.

Hospital and Health Center to Be Established.—On November 8, a drive will be inaugurated to raise a fund of a million dollars to enable the supporters of the Chicago Polyclinic and Hospital to erect a modern hospital and health center. At the health center the public will not only be taught how to keep well but there will be a dispensary or outpatient department, a diagnostic clinic, an outpatient obstetric section and a follow-up section. The old building of the Chicago Polyclinic has been in use for thirty-four years and has ministered to more than one million patients among the poor of Chicago. Its facilities are at present most inadequate. The new dispensary will be fully equipped for handling all sorts of ambulatory cases. Special consideration will be given to the care and reconstruction of men injured in industrial accidents. The new building will be as nearly noise-proof as possible. The group of buildings will include an outpatient and educational department, a completely equipped hospital, training school, a home for nurses and a social service department. In the hospital, there will be a number of small private rooms for use of patients at very moderate prices. The drive is under the direction of Mrs. Mary F. Kern, and teams composed of physicians, nurses and society women are being organized on a regimental basis.

INDIANA

State Society Meeting.—The annual meeting of the Indiana State Medical Society will be held in South Bend, September 22-24, under the presidency of Dr. Charles H. McCully, Logansport, the St. Joseph County Medical Society acting as host. Headquarters will be established at the Oliver Hotel and the sessions will be held in the auditorium of the Elks' Home.

Personal.—Dr. James J. Moorhead has been appointed surgeon in chief of St. Anthony's Hospital, Terre Haute.——Dr. Isham E. Cottingham, Evansville, while attending a family reunion at Poole, Ky., fractured his right leg while climbing a fence, August 28, and was obliged to drive his automobile 30 miles before he could obtain medical attention.——Dr. Bayard G. Kenney, Shelbyville, sustained painful injuries in a collision between his automobile and another motor car, near Shelbyville, August 21.

KENTUCKY

Physicians and Druggists Cited.—State Prohibition Director James H. Combs on August 16 cited thirty-seven physicians and seventeen druggists of Louisville to appear before him, September 6, to show cause why their permits to handle liquor should not be revoked.

Personal.—Dr. Frank Reynolds, Carlisle, has been elected full-time health officer for Mason County, succeeding Dr. John H. Rice, Hopkinsville, resigned.——Miss Mathilde S. Kuhlman, R.N., has been appointed director of the division of public health nursing of the state board of health.——Dr. Dunning S. Wilson, Louisville, has been appointed director of the medical department of the French Lick Springs Hotel, French Lick, Ind.

MAINE

New Officers.—At the annual meeting of the Somerset County Medical Association, held at Lakewood, August 5, Dr. Harry W. Smith, Norridgewock, was elected president, Dr. Charles A. Moulton, Hartland, vice president, and Dr. Clyde E. Richardson, Skowhegan, secretary-treasurer.

Tuberculosis Clinic Opens.—Physicians of Maine, thirty-six in number and representing practically every county in the state, enrolled for the tuberculosis clinic which opened at the Central Maine Sanitarium, Fairfield, August 3. The clinic will include intensive study for a week on all phases of tuberculosis diagnosis under the direction of a faculty of experts with a briefer study of malignant disease and venereal diseases. The clinic was begun under the auspices of the Maine Public Health Association in cooperation with the state department of health and the Maine Tuberculosis Sanatorium trustees.

MARYLAND

Health Talks at County Fair.—Dr. John S. Fulton, secretary of the state board of health, is at the head of a party of Baltimore public health experts who are in Salisbury, to establish a medical exhibit at the Salisbury Fair. The party is making use of an army truck and touring automobile loaned by the United States Government. An army tent will be set up at the fair and equipped with moving picture

machines and placards. Members of the party will lecture each day of the fair on general health topics.

Personal.—Dr. Harry J. Moss, who recently resigned as superintendent of the Hebrew Hospital, Baltimore, to become superintendent of the new Bronxville and East New York Hospital, was recently the guest of honor at a dinner given by the members of the house staff and visiting physicians of the institution, who presented him with a gold cigaret case. Dr. Moss will assume his new duties at once.——Mr. George E. Halpin, superintendent of the Lebanon Hospital, has been appointed head of the Hebrew Hospital to succeed Dr. Moss.——Dr. J. J. Krozer, Baltimore, the oldest living graduate of the University of Maryland, celebrated his ninety-third birthday, August 30.——Dr. J. P. Wade, superintendent of the Spring Grove State Hospital, is a patient at the Baltimore Eye, Ear, Nose and Throat Hospital, where he has been undergoing treatment for an infection of the eye.

Hospital Site Purchase Authorized.—The Nursery and Child's Hospital, Schroeder and Franklin streets, will be acquired by Baltimore City for the proposed municipal hospital if satisfactory to Dr. C. Hampson Jones, commissioner of health, and the hospital commission, named sometime ago by the mayor. Dr. Jones has had the nursery and hospital under serious consideration for several months and is said to believe that it is well suited to the purposes he has in mind. The late Dr. John D. Blake selected the property for a municipal hospital while he was commissioner of health, and the board of estimates in the Preston administration dedicated to its purchase the proceeds of the sale of Quarantine to the federal government for the U. S. Public Health Service, amounting to $176,000. Dr. Jones hopes to have the present board agree to this dedication, instead of turning the money into the general treasury, that it may be added to the $750,000 hospital loan the voters will be asked to ratify in November. It is estimated that the city will need $1,000,000 at least to buy property and equip a municipal hospital.

MASSACHUSETTS

Personal.—Dr. Albert V. Murphy has been appointed resident physician at Long Island Hospital, Boston Harbor, succeeding Dr. Albert S. Hyman, resigned.

Increase in Facilities for Care of War Veterans.—Because the public health hospitals of Boston are not large enough to care for the increased number of ex-service men applying for treatment, the federal government has appropriated $46,000 to provide additional accommodations. As soon as additions are completed the public health hospitals at Parker Hill and elsewhere will be returned to their owners for civilian work.

Lepers Return to Colony.—Two lepers from Penikese Island, who have been treated with chaulmoogra oil and in whose case it was expected that a complete cure would be effected, were returned to the colony, August 5, following report of the special medical commission appointed by the state department of health to the effect that, although both patients had shown unusual progress, bacteriologic tests still showed the presence of the bacillus of leprosy.

The Early Diagnosis of Tuberculosis.—The state department of public health, on August 24, announced a series of consultation clinics in early pulmonary tuberculosis to be conducted by the medical staff of the state sanatoriums at Rutland, North Reading, Lakeville and Westfield, at which an opportunity will be afforded the family physician to obtain, without fee, expert dagnosis in this type of pulmonary disease. These clinics begin this month and are to be held in Worcester, Lowell, Taunton and Pittsfield, on the first Wednesday of each month; in Gardner, Lawrence, Brockton and Springfield, on the second Wednesday; in Fitchburg, Haverhill, Fall River and Holyoke, on the third Wednesday, and at Clinton, Woburn, Plymouth and Adams on the fourth Wednesday of each month, from 2 to 5 p. m. Facilities for consultation are provided at each of the state sanatoriums on all days of the week except Saturdays, Sundays and holidays, between the hours of 2 and 5 p. m.

MICHIGAN

Antituberculosis Clinics.—Antituberculosis clinics under the charge of Drs. George H. Ramsey and Frank M. Rose of the state department of health were held at Tecumseh, September 2 and 3; at Blissfield, September 4 and 6; at Morenci, September 7 and 8, and at Hudson, September 9 and 10.

Baby Clinics.—Detroit has now twelve baby clinics, eight of which are maintained entirely by the health department, the other four being conducted by the cooperative efforts of social service workers and of the health department. Through its field nurses and clinics, the health department is in close touch with about 5,000 babies. During July a baby and preschool clinic was held with an attendance of 3,258, and a prenatal clinic with an attendance of 400.

State Health Department Takes Over Tuberculosis Clinics.—The Michigan Department of Health has taken over the direction of the state tuberculosis clinics formerly supervised by the state antituberculosis association. Under the direction of W. J. V. Deacon, director of communicable diseases, the department will conduct clinics throughout Michigan. The nature of the work will be twofold. Under Dr. George H. Ramsey, formerly in charge of the tuberculosis pavilion at the Herman Kiefer Hospital, Detroit, patients will be examined for tuberculosis, while under the direction of Dr. Frank L. Rose, Jackson, children will be examined, particularly to discover pretuberculosis defects.

MINNESOTA

Typhoid Fever.—The outbreak of typhoid fever in the downtown district of St. Paul has apparently reached its apex. During July and up to August 16, fifty-one cases of the disease had been reported. The health department is giving free antityphoid inoculations, and water analysis and thorough investigations are being made by the city health department.

New Medical Association.—The Redwood-Brown Medical Association has been organized at Sleepy Eye, with Dr. Charles C. Walker, Lamberton, as president. The organization will take the place of the old Brown-Redwood Medical Society which was denied recognition by the state organization because of its refusal to discipline one of its members who was disloyal.

Personal.—Dr. Leonard G. Rowntree, professor of medicine in the Medical School of the University of Minnesota, and Dr. Reginald Fitz, associate in medicine of the Massachusetts General Hospital, have joined the staff of the Mayo Foundation and the Mayo Clinic at Rochester. They will be associated in the further development of research in internal medicine and in the hospital care of medical cases.

Venereal Disease Laboratory.—The Minnesota State Board of Health, Division of Venereal Diseases, coordinated with the U. S. Public Health Service, is operating a venereal disease laboratory on the university campus, Minneapolis. Up to the present time, 541 of about 2,500 physicians of the state have made use of this laboratory. It is hoped by Dr. H. T. Irving, the director, that many others will take advantage of the facilities thus offered.

MISSOURI

Personal.—Dr. Joseph F. Bredek has been appointed assistant health officer and controller of tuberculosis for the city of St. Louis.

New Home for Training School.—Dr. Ellsworth H. Trowbridge, Kansas City, has purchased the residence owned by W. A. Pickering, for the use of the Trowbridge Training School for Backward Children.

New Manager for Kansas City Hospital.—Mr. Hugh Miller has retired as president of the hospital and health board of Kansas City to take up the position as manager of the Kansas City General Hospital, an office recently created by the mayor.

Women Offer Aid in Emergency.—Members of the Federation of Women's Clubs of St. Joseph have offered to go to the aid of the board of health and perform voluntary duty, sanitary inspection, etc., during the crisis in the financial affairs of the city of St. Joseph.

Resolutions Regarding Dr. Dandurant.—At a special meeting of the Buchanan County Medical Society, held at St. Joseph, August 9, resolutions were adopted regarding the death of Dr. Lewis J. Dandurant, August 1, expressing appreciation of the work of Dr. Dandurant, regret at his death, and sympathy for his family.

NEBRASKA

Progress on Hospital Building.—Construction work on the Brown County Hospital, Ainsworth, has proceeded far enough to assure the laying of the cornerstone, September 7.

Building Contract Awarded.—The state board of control has awarded the contract for the erection of a new building at the Nebraska Institution for Feeble Minded Youth at Beatrice.

Work to Be Resumed on Medical Building.—A rumor, said to be well founded, has been recently circulated in Omaha that work will be resumed on the new Medical Arts Building, the new plans contemplating no reduction in the size of the construction.

NEW YORK

New County Hospital.—A number of patients have already been received in the Newton Memorial Hospital at Casadaga Lake near Lily Dale. This is the new county tuberculosis hospital. The two buildings for incipient cases are not yet ready for occupancy.

Alleged Physicians Under Arrest.—The state police at Lebanon on August 17 arrested a man, who gave the name of Jacob C. Roth and who claimed to be a physician of Albany, on the charge of conspiracy, asserting that this man, with an accomplice, attempted to obtain $610 from Mr. and Mrs. P. C. Roberts, West Lebanon, guaranteeing a cure of rheumatism and eye trouble. The original bill rendered by these men was $810.

Outing of County Physicians.—The Orange County Medical Society held its annual outing at the Warwick Hospital, August 12. After tea had been served at the hospital, there was a meeting at the Oakland Theater at which Dr. Howard S. Jeck of the General Memorial Hospital of New York delivered an illustrated address on "The Use of Radium in the Treatment of Carcinoma of the Bladder," after which dinner was served at Greenwood Lake.

Sanitary Officers' Conference.—The nineteenth annual conference of sanitary officers of the state of New York and the second annual conference of public health nurses of the state of New York was held at Saratoga Springs, September 7 to 9, under the auspices of the New York Department of Health. The program included addresses by the governor of the state of New York, Dr. Milton J. Rosenau, Boston, and Florence Bullard, R.N., the subject of whose address was "With the Red Cross in France and America." Among the topics for discussion were "Coordination of Health and Social Agencies," by Dr. George T. Palmer, assistant director of the state department of health, Springfield, Ill.; "The Health Center Project," by Dr. Matthias Nicoll, Jr., acting commissioner of health, New York City; "Special Education for the Public Health Nurse," by Dr. Josephine S. Baker, director of the division of child hygiene of the New York City Department of Health, and "Problems of the Public Health Nurse in Small Communities," presented by Mary Carter Nelson and Mary Phillips Crandall, R.N.

New York City

Vessel from West Indies Brings Smallpox.—A suspected case of smallpox among the ninety passengers of the United Fruit liner *Carillo*, arriving in this port on September 2, caused the detention of all passengers at Hoffman's Island for vaccination.

Hospital Buys Nurses' Home.—The Knickerbocker Hospital, Convent Avenue and One Hundred and Thirtieth to One Hundred and Thirty-First streets, has purchased for a nurses' home the five-story apartment house on the adjoining property at 458 West One Hundred and Thirty-First Street.

City Takes Straus Milk Stations.—On September 1, Health Commissioner Royal S. Copeland formally accepted in behalf of the city the Nathan Straus milk stations and laboratory, which have been maintained by this philanthropist since 1892 and which he presented to the city on condition that it assume the responsibility of maintaining them.

Hospitals Reflect Failure to Enforce Volstead Act.—According to a report issued by Commissioner Coler of the department of public welfare, the city's two alcoholic wards at the Kings County and Bellevue hospitals have taken care of more than twice as many intoxicated persons during the month of August as during any since prohibition went into effect. It is said that the number treated at Bellevue during the month exceeded 200.

OKLAHOMA

Public Health Conference.—The third annual Oklahoma State Public Health Conference will be held in Oklahoma City, October 12 and 13. The conference is under the joint direction of the Oklahoma Tuberculosis Association and the state department of public health.

Personal.—Dr. Claude A. Thompson, examiner for the U. S. Public Health Service for the Muskogee district resigned, August 14.——Dr. Joseph Wade Bone, Sapulpa, has been elected president, and Dr. L. I. Smith, secretary-treasurer of the Creek County Medical Society.

OREGON

Health Association Organized.—Curry County is the first county in the state to organize a public health association. The association will take up the matter of the modern health crusade in the public schools and will assist in the sale of Christmas tuberculosis seals. Mrs. A. W. Cope, Langlois, has been elected president of the association.

Personal.—Dr. Richard Nunn, Portland, who has been serving in the British army as an eye, ear, nose and throat specialist since April, 1915, has returned to Portland.——Dr. Joseph M. Murphy, Portland, in charge of The Cedars, the venereal disease hospital of Portland, has resigned.——Dr. John G. Abele has been made acting health officer of Portland in the absence of Dr. George Parrish.

PENNSYLVANIA

Personal.—Dr. Robert P. Elmer, Wayne, retained the international archery championship at the annual tournament of the National Archery Association.

Schuylkill County Wins Banner.—Schuylkill County has won the banner in the fourth class of counties in the modern health crusade just conducted by the Pennsylvania Tuberculosis Society. During the year, 30,551 pupils were enrolled in the crusade in that county.

Sanatorium Unfit for Soldiers.—On investigation, the sanatorium at Markleton, Pa., was found to be in a very unhealthful and unfit condition for its inmates. The hospital has 150 patients, mostly tuberculous, and many of them suffering from wounds received while fighting in France. About thirty-two of the patients are confined to their beds. An appeal has been made to the Somerset County and state health authorities to help in removing the patients to another institution.

Compulsory Insurance.—Legislation concerning compulsory insurance was discussed at a meeting of physicians of Berks, Bucks, Chester, Delaware, Lehigh, Montgomery, Northampton and Philadelphia counties at Willow Grove, September 2. While no definite action has been planned, it is possible that some organization may be effected to try to counteract the legislative and other inroads which have been made into the medical profession. Frederick L. Hoffman was the principal speaker. A dinner followed the meeting.

Society Meetings.—The annual meeting of the Fourth Censorial District Medical Association was held at Mt. Gretna, August 19. Dr. George Kunkel was elected president; Dr. Harry Miller, vice president; Dr. Jesse Lanker, secretary, all of Harrisburg.——The Medical Society of Franklin County met at the Mount Alto Sanatorium, August 19, as the guests of Colonel Hazlett, the director of the institution.——Cambria County Medical Society held its annual meeting at Spangler, August 12, and elected the following officers: president, Dr. Harry M. Stewart, Johnstown; vice presidents, Drs. Edward Pardoe, Southfork, and Edwin C. Boyer, Johnstown, and secretary, Dr. F. G. Scharmann, Johnstown.

Philadelphia

Warn of Vacation Typhoid.—Despite warnings issued early in the summer, the municipal health authorities expect a prevalence of "vacation typhoid." Director of Public Health Furbush admonishes against spreading the disease. He points out that last year 23 per cent. of the typhoid fever cases in Philadelphia were traced to out-of-town infections.

Fight Asthma with Serum.—Inoculations of serums prepared from goose feathers, horse hair, dog hair, cat fur and other substances that produce asthma are used at the asthma clinic of Jefferson Hospital in the treatment of the disease. Goose feathers and cat fur are held responsible for asthma, according to the ideas of Dr. Chandler, originator of the method. Many who report to the clinic sleep on goose feather mattresses or wear fur coats in winter. The physicians therefore inoculate them with the serum and persuade them to give up the mattresses and fur coats as part of the cure.

SOUTH CAROLINA

Traveling Clinic.—The South Carolina Anti-Tuberculosis Association at its meeting, July 28, took up the tuberculosis seal campaign; it is to begin about December 1. Of the

$50,000 which it expects to raise, at least $14,000 will be used for the maintenance of a traveling clinic, including a doctor and nurse, which will cover each county in the state.

Society Entertains Medical Officers. — The Greenville County Medical Society gave a dinner to the doctors of the medical staff of the U. S. Public Health Service Hospital, Camp Sevier, July 29. Dr. James Leland Anderson, Greenville, officiated as toastmaster, and Major F. E. Dedman, Col. E. W. Cresley, and Dr. Edgar A. Hines, Seneca, secretary of the state medical association, made addresses.

Gain Scholarships.—Scholarships for the Medical College of South Carolina, Charleston, were awarded by Governor Cooper, August 12, as follows: First district, J. G. Murray, Charleston; second district, no application; third district, J. F. Garrett, Liberty; fourth district, Alfred G. Taylor III, Taylors; fifth district, W. M. Jones, York; sixth district, John McI. Willcox, Darlington, and seventh district, J. Frank Woods, New Brookland.

Personal.—Dr. Alexander M. Redfern, for twenty-seven years surgeon to Clemson College, has resigned and will retire from the active practice of medicine and devote his time to farming in North Carolina.——I. V. Hiscock, city bacteriologist of Columbia, has resigned, taking effect September 1.——Dr. Kivy Pearlstine, Charleston, who was seriously injured in an explosion, July 16, is reported to be improving slowly.——Dr Walter Boon, Bishopville, health officer to Lee County, has been appointed health officer to Cherokee County with headquarters at Gaffney.——Dr. Paul Knotts has been appointed health officer of Lee County.

TEXAS

Personal.—Lieut.-Col. Ralph S. Porter, M. C., U. S. Army, while motoring with his wife and son from Fort Leavenworth to his new station at Fort Sam Houston, Texas, met with a serious accident near Caddo, Okla., his car plunging over a railway embankment, a distance of about 30 feet. The son was not injured, Mrs. Porter sustained an extensive fracture of the pelvis, and Colonel Porter a fracture of the shoulder.

CANADA

New Medical Building.—A new medical building is being erected at the University of Alberta, Edmunton.

University News.—Sir William Meredith has been reelected chancellor of the University of Toronto. The election of medical representatives to the senate of the university resulted, as follows: Drs. Augusta Stowe-Gullen, Charles J. C. O. Hastings, Arthur C. Hendrick, Andrew S. Moorhead, all of Toronto.

Exonerated.—Drs. J. A. Prevost and Robert St. Jacques, Montreal, recently charged in the criminal courts with neglect in the case of a female patient in the Montreal General Hospital—in other words, an illegal operation—have been exonerated by a judge of a higher court who held that there was no proof against either doctor, and the case was dismissed.

Fraudulent Branch of Mayo Clinic.—A man by the name of Russell Rumas, with elaborate offices in Winnipeg, has been masquerading as a regular practitioner of medicine, and has been carrying on a branch of what he styled—the Dr. Gordon Mayo branch of the Mayo Brothers, Rochester. It is understood he has been convicted in the courts of fraud and for practicing medicine without a license.

Neuropsychiatric Association Organized.—The Ontario Neuro-Psychiatric Association has been organized with the following officers: president, Dr. Edward Ryan, Kingston; vice president, Dr. Harry Clare, Toronto; secretary-treasurer, Dr. C. Crawford, Whitby. The work of the association will extend to the study of defective children, social welfare work, care in the selection of immigrants, the problem relating to the feebleminded, psychoses and neuropsychoses.

Personal.—Dr. Ardrey W. Downs, formerly assistant professor of physiology at McGill University, Montreal, has accepted the chair of physiology in the University of Alberta, Edmunton.——Dr. E. Pearl Hopgood has been appointed second assistant woman physician of the Nova Scotia Hospital, Halifax.——Dr. Bryce McMurrich, Toronto, who recently returned from China, has been appointed medical superintendent of the Speedwell Hospital at Guelph, Ont. This has been a military hospital, and the tuberculosis patients are being removed to the Byron Sanatorium at London and other points.——Dr. A. Grant Fleming, Toronto, who a few months ago was made chief of the venereal department of the federal board of health, Ottawa, has been appointed by Dr. Charles J. C. O. Hastings, deputy medical health officer.——Dr. Douglas, D.P.H., has been appointed medical officer of health for the city of Halifax, N. S. With him will be associated Dr. Bruce Almon who has been acting medical officer of health.

GENERAL

Personal.—Dr. Rebecca Parrish, medical superintendent of the Mary Johnson Hospital for Women and Children, Manila, P. I., is at her home in Logansport, Ind., on leave.

Anesthetists to Meet.—The National Anesthesia Research Society will hold its first annual meeting in Pittsburgh, October 4 to 8, in conjunction with the Interstate Anesthetists Society, the Western Pennsylvania Odontological Society and the Medical Society of the State of Pennsylvania. Headquarters will be at the William Penn Hotel. At this meeting will be awarded prizes aggregating $200 for the best papers on original research on anesthesia presented before the society.

Bequests and Donations.—The following bequests and donations have recently been announced:

Boston Home for Incurables and Children's Hospital, Boston, each $5,000, by the will of Mrs. Henrietta M. Pierce, Dorchester, Boston.

Boston Floating Hospital, Massachusetts Homeopathic Hospital, and Boston Dispensary, each $5,000; Massachusetts Women's Hospital, Perkins Institute, Massachusetts School for the Blind, Infants' Hospital, Free Hospital for Women of Brookline, the Convalescent Home of the Children's Hospital, Talitha Cuna Home and Hospital, Boston Nursery for Blind Babies, Instructive Nursing Association and Collins Consumptive's Home, Dorchester, each $1,000, by the will of Charles L. Davis, Roxbury, Boston.

Seaside Home for Invalid Women, Atlantic City, N. J., $2,000; Pennsylvania, Episcopal and Children's hospitals, Philadelphia, each $5,000, by the will of Margaretta Hutchinson.

Chicago Old Peoples' Home and Visiting Nurses Association, each $5,000, by the will of Etta F. Bayley, Chicago.

Scottish Old Peoples' Home, Chicago, a donation of $1,000, by Dr. John A. McGill.

Touro Infirmary, New Orleans, to be used in the social service department of the infirmary for needy mothers and infants under the care of the maternity charity department, and for needy children under six years of age and in care of the social service department, a donation of $10,000, in memory of her daughter, Rose Bonart Beckman, who died a year ago, by Mrs. Hurtz Bonart.

Good Samaritan Hospital, Portland, Ore., a bequest of about $40,000 to maintain a free room for persons requiring care and unable to pay for the service, by the will of George Boschlin, Portland.

LATIN AMERICA

Election of Officers.—The Academia nacional de medicina of Rio de Janeiro recently reelected Dr. Miguel Couto president; Dr. Aloysio de Castro vice president; Dr. Garfield de Almeida and Belmiro Valverde first and second secretaries, and Dr. Olympio da Fonseca secretary general. At this annual meeting, resolutions were adopted expressing sorrow for the death of General Gorgas.

Yellow Fever Lessening. — Reports from Vera Cruz, August 24, indicate a decline in the number of cases of yellow fever in the city. The sanitary work that is being carried out on a large scale under the charge of Surgeon Carl Michel, U. S. Public Health Service, is yielding gratifying results.——Dr. Hideyo Noguchi, of the Rockefeller Foundation, has gone to Vera Cruz from Mexico City to aid in combating the epidemic.

Personal.—Prof. G. Aráoz Alfaro of Buenos Aires has been invited to deliver a series of lectures at the University of Paraguay, and has left for Asunción. — Dr. H. da Rocha Lima of the Institute for Tropical Diseases at Hamburg, is visiting his former home in Rio de Janeiro.——A reception was tendered Prof. F. Krause of Berlin during his recent stay in Rio de Janeiro.——Prof. Custodio Cabeça of Lisbon has also been visiting in Brazil.

FOREIGN

Cholera Epidemic in China. — Medical missionaries and students in the Union University Missionary School are aiding the Chinese authorities in fighting a serious epidemic of cholera in Chengtu, West China.

First Special Urologic Clinic in Belgium.—This new clinic was recently inaugurated at Liége, the efforts of Prof. A. Hogge to realize it having finally been crowned with success. He has been professor of urology there since 1912.

Medical Students in Sweden.—The *Svenska Läkartidningen* states that the three Swedish university medical schools had only thirty-three medical students in all in 1900, but in 1907 the total surpassed 107 and had increased to 187 in 1916. Only about 62 per cent. of the total take the final examinations.

Prices of Drugs Declining.—The *Deutsche medizinische Wochenschrift* cites a number of drugs, including the salicylates, salts of gold, silver, mercury and bromin, iodin and tannin, for which the price has been materially reduced. It comments that this remarkable phenomenon is due to the present world-wide *Kaufunlust*.

Protection for Workers in Compressed Air.—The German minister of labor has decreed that medical supervision of the health of all persons working in compressed air is compulsory. If the pressure is over 1.3 kg. per square centimeter, the physician must live near the place where the work is being done and be accessible at all times. With a pressure of 2.5 kg. the continuous presence of the physician at the place is imperative. Men under 20 and over 50 must be excluded from compressed air work.

Foreign Medical Journals in Germany.—The larger medical libraries in Germany have organized and established headquarters, the Auskunftsbüro Unter den Linden, 38, Berlin, where a record is to be kept of all the foreign medical journals received by the different libraries. They are urging private libraries to cooperate, so that information will be available of the different journals received at various points, where they can be consulted or arrangements can be made to loan special numbers, and duplication avoided. The Prussian state library which before the war had 3,000 foreign journals regularly on file has now only 250. The appeal is issued in the name of German science "hampered by the lack of knowledge of what is going on in scientific circles in other countries."

Artificial Pneumothorax Association.—The International Association of Pneumothorax Artificialis, the work of which was not carried on during the World War, has issued an invitation to all former members of the association to renew their subscriptions. All other physicians interested in artificial pneumothorax are requested to send their names and addresses to Prof. Umberto Carpi, Lugano, Switzerland, to become members of the association, and to subscribe to the *Pneumothorax Thérapeutique*, the subscription price of which is 5 francs. The purpose of the organization is to spread all practical and scientific knowledge concerning artificial pneumothorax. The subscription entitles the subscriber to receive the journal and also a complete list of the physicians practicing pneumothorax.

Training of Health Officers in Germany.—The *Deutsche medizinische Wochenschrift* states that the plan for training health officers will soon be realized. Social-hygiene academies have been organized at Breslau, Berlin and Düsseldorf, and four months' courses are to open with the winter term to train district and communal physicians, medical inspectors of schools and in medical prophylaxis work in general. The various branches of study include social hygiene on the basis of social economics, medical statistics and social pedagogics; social pathology; care of the healthy and care of the sick, embracing prevention and stamping out of epidemics; social legislation, insurance medicine and medical ethics. The instruction will be on the plan of graduate schools with the main stress on practical training. Physicians who wish to compete for positions as *kreisärzte* will find facilities for a course in bacteriology and hygiene; jurisprudence, and legal psychiatry. Certificates from these academies will entitle to precedence among applicants for positions as health officers, city physicians, medical inspectors of schools, etc.

Deaths in Other Countries

John Hamilton Fullerton, London, England, L.R.C.P., L.R.C.S. (Edin.), and L.F.P.S. (Glas.), 1906; for a time lecturer in the University of Glasgow, zoologist and superintendent of the Fishery Marine Laboratory, Royal Fishery Board, Scotland; died in June.——Dr. **E. Vidal** of Paris, founder of the *Archives de thérapeutique* not long before the war.——Dr. **Deformes,** a leading physician of Valparaiso, Chile, founder of the *Revista de medicina e higiene practicas* and author of numerous articles on hospital administration and public health matters in medical and lay journals, aged 54. ——Valparaiso has also lost recently two other hospital physicians, Dr. **Juan Pardo** and Dr. **R. Montt Saavedra,** who served in several public health offices.——Dr. **Cavasse** of Cannes and Paris, one of the leaders in the campaign against tuberculosis.——Dr. **E. Herrenschmidt** of Strasbourg, aged 86. ——Dr. **F. Guiard,** president of the Association française d'Urologie, aged 68.——Dr. **J. Curry Cabral,** professor of surgery at the University of Lisbon until reaching the age limit in 1905, member of the national board of public health, president for several terms of the Sociedade das sciencias medicas of Lisbon, aged 76.——Dr. **F. Guevara,** professor of surgery in the University of San Salvador and surgeon to the Hospital Rosales since 1883.——Dr. **J. Hector Jara,** a prominent physician of Mar del Plata, Argentina, aged 51. ——Dr. **L. Dreyer,** director of the orthopedic service of the surgical clinic at Breslau, aged 39.——Dr. **U. Vetsch,** director of the ophthalmologic service at St. Gallen, Switzerland.

Government Services

Army Field Medical School

Surgeon-General Ireland and Brig.-Gen. W. D. McCaw, president of the Army Medical School, have made an extensive inspection of the Field Medical School at Carlisle, Pa. This school was established several years ago for the purpose of giving medical officers and noncommissioned officers special training for field medical work. The faculty has recently been increased and many new courses have been added, including roentgen-ray instruction in the field.

Public Health Service Orders

Asst. Surg.-Gen. W. G. Stimpson, U. S. P. H. S., has been directed to proceed to different supervisors' offices of the district to inspect hospitals and other buildings suitable for hospital purposes for care and treatment of sick and disabled persons discharged from the military service.——Asst. Surg.-Gen. Joseph H. White, U. S. P. H. S., has been directed to proceed to Guatemala for the purpose of inspecting conditions relative to the prevalence of yellow fever, thence to proceed to Salvador and Nicaragua.

Examinations for Admission to the Army Medical Corps

The report of the examining board for admission to the Medical Corps of the Army will probably be complete within the next few weeks. About 1,700 physicians from every part of the country, all of whom served in the Army during the World War and desired to continue in the service, appeared for the written and oral examinations. The grades in most instances were surprisingly good, according to information given out by Surgeon-General Ireland. The commissions are expected to be announced before October 1 by the Secretary of War on the recommendation of the board of officers established under the Army Reorganization Act.

Inspection of Public Health Activities

Surg.-Gen. Hugh S. Cumming of the U. S. Public Health Service, left this week for a three weeks' tour of inspection of public health activities. Hospitals operated by the government at Chicago, Portland, San Francisco, Prescott, Ariz., Mobile, Ala., and other points are on his itinerary. He will also visit Fort McKenzie, near Sheridan, Wyo., where it has been proposed to locate a new hospital for wounded and disabled soldiers. Operations against the spread of plague at the Pacific port cities will also receive attention. While in the West he will attend the convention of the American Public Health Association to be held at San Francisco, September 13-17.

Campaign Against Plague

News that bubonic plague has been found in Paris led Surgeon-General Cumming of the U. S. Public Health Service to issue a warning to prepare all large ports of the country against possible infection of the black plague. It is felt among public health officials that its introduction into New York is not improbable, and every harbor in the country should be alive to the dangers of the situation. Thorough examination of all rats killed in fumigating ships and a system of trapping rats along the water front are recommended. In a recent statement the Surgeon-General said: "Under modern health conditions it is hardly to be expected that bubonic plague could ever reach the epidemic proportions by which the black death devastated Europe, yet it is an enemy to be feared. All buildings at harbor towns should be rat-proofed. All larger cities should begin the work of rat-proofing at once."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 14, 1920.

Outbreak of Paratyphoid Fever Due to a Germ Carrier

An inquest has been held on the body of a Frenchman, aged 31, who died from acute enteritis, the result of food poisoning. The evidence disclosed that nine other persons living in the house were also affected. The medical officer of health expressed the opinion that the housewife, who was taken ill three days before the others, was a germ carrier and had communicated the disease to the others by infecting the juice of some liver while cooking. He had found *Bacillus coli* in the gravy. Dr. H. Schutze, bacteriologist at the Institute for Preventive Medicine, found the "mutton type of paratyphoid B" in the body of the deceased as well as in a sample of the gravy. He concluded that the food had been infected at some stage, apparently by the housewife. On the other hand, Dr. Braxton Hicks, pathologist at the Westminster Hospital, had not been able to find that the woman was a carrier of the organism in question, which he thought pointed to her having an attack from which she was recovering rather than being a true carrier. Her illness previous to that of the others seemed, however, to point to the fact that she infected the food.

Standard Artificial Limbs for Pensioners

For three years the ministry of pensions has been considering the standardization of the artificial leg supplied to pensioners with the object of facilitating repairs and replacement. A committee consisting of Mr. T. H. Openshaw, Mr. E. Muirhead Little and Mr. R. C. Elmslie (orthopedic surgeons), Mr. Michael Longridge (an engineer) and others have worked on the subject and made a report with the result that the specification of the standard limbs has now been approved by the advisory council to the ministry. In a few months all artificial legs of wood or leather supplied to pensioners will comply with the new specifications. The method has been to standardize the mechanism of the limb and the metal component parts, leaving the actual limb to be fitted to and assembled for the individual pensioner by the limb-maker. The latter point is of great importance, as the limb must be adapted to the individual needs of the man. Standardization is not to be allowed to interfere with progress. It is a standardization of those types of limbs that have been thoroughly and extensively tested, and of which about 35,000 have been issued. Further improvements will be made, and the types will be modified as these are tested and proved. The ministry has had in hand the problem of providing a lighter artificial leg made of duralumin or some similar metal instead of wood and leather, and one type of this light limb has now received the approval of the advisers. Light limbs have evident advantages for certain cases. The pattern now approved will, it is hoped, be capable of being made by an engineering firm so that only the actual fitting to the man need be carried out by a skilled limb-fitter.

A New Test for Physical Fitness

In a report to the department of scientific and industrial research, Haldane and Briggs have reported a remarkable discovery made while investigating apparatus for rescue work in mines. They found that while air enriched with oxygen produced a marked benefit for untrained workers, practical miners seemed to derive little or no benefit from it. Further investigation revealed the very striking fact that when ordinary air is breathed, the expired air of miners or other men in equally good physical training contains, during exertion, a much higher percentage of carbon dioxid and lower percentage of oxygen than that of men not in good training. In other words, less air is breathed by men in good training for a given consumption of oxygen or amount of work. How is this fact to be explained? Haldane and Briggs believe not only that oxygen does pass to the blood by simple diffusion through the walls of the air spaces in the lungs, but also that the cells forming these walls have a power, hitherto unknown, of "actively passing the oxygen on to the blood." Thus, the trained man differs from the untrained man in the fact that his alveolar cells have learned to pass on oxygen very quickly and in large amount when his blood is flowing rapidly during exertion. Consequently, he is really independent of the amount of oxygen in the air—he can trust his alveolar cells to work harder and give him what he requires. The untrained man is not so fortunate. His alveolar cells are not trained, and when his blood begins to flow rapidly, there is not time for enough air to diffuse through. But if the air is enriched by oxygen, and the "oxygen tension" thereby increased, he gets enough oxygen to meet his needs. Thus, the untrained man is more efficient as a worker when he breathes oxygen. The trained man is not more efficient. This view has led to the further discovery of a test for physical fitness—whether a man is benefited or not by oxygen, during exertion. This was applied during the war, and offers a new basis of standardization of functional efficiency.

The Prophylactic Treatment of Tetanus in the War

Statistics showing the great value of prophylactic treatment in the war, furnished by the War Office Committee on Tetanus, of which Sir David Bruce is chairman, have been given in previous letters to The Journal. He has now supplied what appears to be a final report. It deals only with cases of tetanus arising in England. Some 1,242,000 wounded were sent home, of whom 1,458 developed tetanus, a little more than 1 per thousand. In September, 1914 (the second month of the war), the rate was 9 per thousand; in October, 7, and in December, 1.4. In November, 1918, the rate was only 0.7 per thousand. This remarkable fall was due to the giving of antitetanic serum immediately after the wound had been sustained. The value of the treatment was also shown by the prolonging of the incubation period and consequent reduction of the severity of the disease. The average number of days elapsing between wounding and the onset of tetanus for each year was: 1914, 11.7; 1915, 27.3; 1916, 34.0; 1917, 48; 1918, 46.5. Thus, as inoculation became more thorough, the disease became less severe. Improvement is also shown by the increased percentages of the cases of local tetanus:

Type	1914	1918
General	98.9	83.5
Local	1.1	16.5

Summing up the effect of the treatment, Sir David Bruce says: "Among wounded men who have received at least one preventive dose, the death rate falls from the old preserum rate of 85 to 23 per cent."

A Canadian Physician's Praise of the London Surgeons

Dr. E. A. McCulloch of Toronto, who has been taking courses of the Fellowship of Medicine, has written a letter to the press, expressing his satisfaction in these terms: "Every branch of medicine seems to have its leading exponent in old England. It is, however, of the surgeons that I would particularly speak. In Canada and the United States we always considered that we had the finest surgeons in the world. Without disparaging our own men, I will freely admit that in the large hospitals of London I saw a better system of handling patients, operations more quickly performed and just as skilfully, and a personal modesty on the part of the operator which is not a conspicuous attribute of our own surgeons. It is devoutly to be hoped that the splendid recep-

tion these men have given us from across the pond will induce many more of us to come to London for our postgraduate work, and that, whereas formerly Vienna and Berlin were the lodestars of postgraduate students, London may be in future the medical Mecca of the world."

The Great Influenza Epidemic

A further report on the great influenza epidemic of 1918-1919, issued by the registrar-general, brings out several most interesting points. The deaths numbered 112,329, for males being 53,883 and for females 58,446. The males included 7,591 noncivilians, and, deducting these, the deaths of civilians corresponded to a mortality of 3,129 per million civilian population. No such mortality has ever before been recorded for any epidemic in this country since registration commenced, except in the case of the cholera epidemic of 1849, when the mortality from that cause rose to 3,033 per million population. None of the previous outbreaks of influenza can compare in mortality with that of 1918-1919. During the forty-six weeks from June 23 to May 10, the total deaths allocated to the disease were 151,446, including 140,989 of civilians, the corresponding civilian death rate for these forty-six weeks being at the annual rate of 4,774 per million population. The mortality attributed to influenza does not represent the whole of that caused by it. The entries under other headings, especially those of respiratory disease, were always bound to increase during an epidemic; and though that did not occur in 1918 to the same extent as in other recent outbreaks, allowance must be made for these increases in mortality, allocated to other causes, but really attributable to influenza, in endeavoring to measure the loss of life caused by the epidemic. An astonishing feature was the sudden change of age incidence. In earlier years, influenza was less important under 55 years and more so above that period. In 1918-1919, this position was suddenly reversed. Those under 35 died in appalling numbers; those over 55 seemed to be relatively safe. It may be doubted whether so sudden and so complete a change of incidence can be paralleled in the history of any other disease; yet all the weight of medical testimony goes to show that the influenza of 1918 was essentially the same as that of former years. Attempts have been made to explain the change as due to alteration in the circumstances of the population. Thus it has been suggested that aggregation of young women in munition works in 1918 may partly account for their specially heavy mortality. No simple explanation on these lines is possible. The alteration in age incidence accompanying the increased prevalence and fatality of the disease in 1918 seems to be more easily explained by a sudden change in the infecting organism than in the soil provided for its growth. We are thus left with the question, "What are the causes which from time to time endow a comparatively harmless malady with ferocious strength, enabling it to destroy its thousands of victims?" These causes may lie in the resisting power of the population; more probably they lie in the attacking power of the germ. If we could gain some idea of the principles at work it might be possible, in the future, to protect ourselves against another such calamity.

Hospitals on the Rates

The hospitals of this country, excepting those for infectious diseases and the infirmaries, are entirely supported by voluntary subscription. The passage of the insurance act, and the war have combined to make their position difficult. The classes who have mainly subscribed for the upkeep of hospitals find themselves heavily taxed for medical attendance on the classes who use the hospitals, and therefore have become less able as well as less willing to subscribe. On the other hand the high taxation and the high cost of living due to the war have also diminished the ability to subscribe. At the same time the cost of maintaining the hospitals has greatly increased. A bill to enable local authorities to contribute to the maintenance of hospitals has been introduced into Parliament by Dr. Addison, minister of health. Like many other things done by the present government, yielding to the stress of circumstances, it is probably the first step on a slippery slope, for the bill strikes at the root of the voluntary principle and will probably cause subscriptions to hospitals to dry up entirely.

BERLIN

(From Our Regular Correspondent)

Aug. 6, 1920.

"The Puberty Glands"

Under the flamboyant title of "Rejuvenation of the Aged," European daily papers, following the lead of Vienna journalists, have been printing sensational accounts of the results of Professor Steinach's experiments with the "puberty glands," just recorded in his book, "Verjüngung durch experimentelle Neubildung der alternden Pubertätsdrüse," published by Julius Springer, Berlin. Steinach's first experiments were made on old male rats, in four of which he was able to induce renewed proliferation in the so-called puberty glands with the result that these impotent animals became sexually potent and procreative. These results were successfully confirmed on two old men, aged 65 and 71, who, two months after operation, lost all characteristics of senility, such as rapid fatigability, dyspnea, vertigo and weakened mental faculties, especially failing memory, and became imbued with vitality and sexual vigor. Similar results, notably increased muscular power, were obtained in a prematurely senile working man, aged 40. Just how permanent these manifestations will be, and whether they can be repeated in other cases, remain to be seen. It is at least regrettable that the daily papers have raised false hopes among the laity by means absolutely discountenanced by Steinach. In the *Deutsche medizinische Wochenschrift*, July 22, 1920, Prof. R. Mühsam has contributed an article on the transplantation of the male gonad, based on his own operations in recent years. In the first case a man of 25 had been castrated for tuberculosis of the testes and had lost practically all secondary sex characters: his libido and potency entirely disappeared, the axillary and labial hair fell out, his voice became higher pitched, and a cushion of fat was formed over the neck and breast. About a year after castration, Mühsam successfully performed a gonad transplantation. Libido returned only about six months later and still persists, the voice became deeper, and the mustache and axillary hair started up anew. In March, 1919, the man married and at an examination one year later he was the picture of health. A second patient, a medical student aged 26, was referred by Dr. Magnus Hirschfeld for possible surgical amelioration of bisexual tendencies. A testis implantation was performed, and in the next four weeks his sexual inclination changed into a decided heterosexual attraction. In April, 1920, his condition was reported as normal. The third case also dealt with a medical student who up to the age of 27 had exclusively homosexual leanings. After excision of his right testis, the bisected undescended gonad of a healthy young man, aged 18, was implanted. Within five days he had heterosexual inclinations with normal erections. Mühsam was unable, however, to confirm Steinach's assertions regarding the anatomic findings in the gonads of homosexual men. In the last patient, whose brother was also an invert, an anatomic basis for the abnormal leanings should certainly have been discernible according to Steinach's postulate. An examination by Professor von Hansemann yielded negative findings; the same thing was true in the case of a confirmed invert, aged 55, in whose excised testis Professor Benda found absolutely normal relations, especially in respect to spermatogenesis and the interstitial cells.

Marriages

CLAUDE C. KEELER, Capt., M. C., U. S. Army, Camp C. D. Little, Nogales, Ariz., to Miss Isabelle Sherman, at Nogales, August 18.

AUSTIN LYNCH CORT, Wilson, Pa., to Miss Carolena Goldstrohm of Elizabeth, Pa., at Pittsburgh, August 26.

ROBERT S. G. WELCH, Lieut., M. C., U. S. Navy, Annapolis, Md., to Miss Sally Bond of Baltimore, August 21.

ELEAZAR ROBINSON BOWIE, New Orleans, to Mademoiselle Renée Gavinet of Limoges, France, recently

ANDREW VALLOIS FREDERICKS to Miss Annie Crawley, both of New Orleans, August 18.

Deaths

John Johnson Kyle ⊕ Los Angeles; Miami Medical College, Cincinnati, 1889; aged 51; professor of rhinology, laryngology and otology in Indiana University from 1900 to 1912; and in the College of Physicians and Surgeons, University of Southern California, since 1913; major and surgeon of the One Hundred and Sixtieth Indiana Volunteer Infantry; and acting brigade surgeon during the war with Spain, with service in Cuba; major, M. R. C., U. S. Army, and discharged Jan. 1, 1918; president of the American Academy of Ophthalmology and Oto-Laryngology in 1910 and 1911; a member of the Association of Military Surgeons of the United States; author of a Compend of Diseases of the Eye, Ear and Throat, and a Manual on Diseases of the Ear, Nose and Throat; died, August 29, from pneumonia.

Clement B. Spalding ⊕ Louisville, Ky.; Louisville (Ky) Medical College, 1904; aged 40; adjunct professor of surgery in Louisville Medical College; associate professor of surgery and anatomy, and assistant in clinical surgery in Louisville and Hospital Medical College; a member of the staff of St. Joseph's Infirmary; died at the Danville and Boyle County Hospital, Danville, Ky., August 30, while under an anesthetic, administered for an operation for appendicitis.

William Hodgson Ellis, Toronto, Ont.; University of Toronto, Ont., 1870; L.R.C.P. (Eng.), 1871; aged 74; formerly professor of toxicology and later dean of the faculty of applied science in his alma mater; a member of the Society of Public Analysts of Great Britain; twice president of the Canadian Institute; president of the local section of the Chemical and Industrial Society; died at Lake Joseph, Muskoka, Ont., August 23.

Robert Kincaid, Olympia, Wash.; Queen's University, Kingston, Ont., 1863; aged 88; a surgeon of U. S. Volunteers during the Civil War; formerly a member of the Canadian Parliament; for twenty-four years coroner of Peterboro County, Ont.; local surgeon for the Midland Railway; for fourteen years health officer of Olympia; died at the home of his son in Seattle, August 15.

G. Franklin Bell ⊕ Williamsport, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 59; for two terms coroner of Lycoming County; for many years a member of the staff and chief surgeon of the Williamsport Hospital; was taken ill while preparing to operate, August 2, and died in the institution, August 9.

Radford H. Willingham, Sturgis, Ky.; Hospital College of Medicine, Louisville, Ky., 1897; aged 45; a member of the Kentucky State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died, August 17.

William E. Stuckmeyer ⊕ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; aged 38; died at the home of his sister in Indianapolis, August 22, from heart disease.

Joseph Homer Gelineau, Easthampton, Mass.; Baltimore University, 1906; aged 37; lieutenant, M. R. C., U. S. Army, with service overseas; was killed, August 18, in an automobile accident, at Northampton, Mass.

John P. Glenn, Franklin, Pa.; Jefferson Medical College, 1872; aged 82; a member of the Medical Society of the State of Pennsylvania; died at the home of his daughter in Franklin, July 17, from cerebral hemorrhage.

Byron Usher Steenberg, Albany, N. Y.; Albany (N. Y.) Medical College, 1870; aged 81; once president of the Albany County Medical Society, and a member of the faculty of his alma mater; died, August 22.

Jonathan Edward Openshaw, Salt Lake City; University of Pennsylvania, Philadelphia, 1918; aged 36; died in a hospital in Salt Lake City August 11, three days after an operation for acute appendicitis.

Matthias Y. Weber, Lower Providence, Pa.; University of Pennsylvania, Philadelphia, 1881; aged 62; a member of the Medical Society of the State of Pennsylvania; died, July 28, from acute gastritis

James Scroggs, Beaver, Pa.; Cincinnati College of Medicine and Surgery, 1872; aged 72; a member of the staff of Providence and Rochester general hospitals; died, August 28.

John Henry Reinfrank, Perrysburg, Ohio; University of Michigan, Ann Arbor, 1864; aged 80; founder of the Reinfrank Hospital, Perrysburg; died, August 16.

Eustorquio Calderon, San Francisco; University of Zurich, Switzerland, 1887; aged 59; died in the Franklin Hospital, San Francisco, August 25, from myocarditis.

Leonard S. Ordway, Denver; Homeopathic Medical College of the State of New York, New York City, 1864; aged 78; died in Ticonderoga, N. Y., August 7.

Benjamin F. Ward, Finona, Miss.; Atlanta (Ga.) Medical College, 1859; aged 87; surgeon in the Confederate service during the Civil War; died, August 26.

Sterling D. Shimer, Easton, Pa.; University of Pennsylvania, Philadelphia, 1895; aged 50; died at the home of his sister in Easton, August 23.

Robert Calvin Kibler, Atlanta, Ga.; Medical College of Ohio, Cincinnati, 1861; aged 83; a Confederate veteran; died, July 13, from dysentery.

Thomas A. Booker, Selma, Calif.; Vanderbilt University, Nashville, Tenn., 1898; aged 48; died, August 21, from nephritis.

Richard Dunn Kittoe, Chicago; Rush Medical College, 1902; died in Benton, Wis., August 21, from mitral insufficiency.

John G. Tidball, Columbus, Ohio; Western Reserve University, Cleveland, 1872; aged 86; died, August 16, from pneumonia.

John A. Sipe, Carthage, Ind.; Missouri Medical College, St. Louis, 1894; aged 48; died, August 20, from cerebral hemorrhage.

William de Forrest Voorhees, Auburn, N. Y.; New York Homeopathic Medical College, 1915; aged 27; died, August 28.

Albert E. Jenkins, Cleveland; University of Michigan, Ann Arbor, 1885; aged 57; died, June 22, from angina pectoris.

Napoleon B. Spratt, Amory, Miss.; Jefferson Medical College, 1868; died, about August 10, from malignant disease.

Robert January Huston, Kobe, Japan; University of Louisville, Ky., 1888; aged 54; died, July 9, from nephritis.

Aristides Smith Harrison ⊕ Enfield, N. C.; University of Maryland, Baltimore, 1888; aged 56; died, August 19.

Clement Joseph Cullen, Oak Park, Ill.; University of Illinois, Chicago, 1911; aged 36; died, September 5.

James Thomas Innes Halliday, Peterboro, Ont.; McGill University, Montreal, 1866; aged 77; died, July 4.

William Pinkney Roberts, Los Angeles; Hahnemann Medical College, Chicago, 1876; aged 84; died, June 5.

Charles Osler, Tuolumne, Calif.; University of California, San Francisco, 1878; aged 69; died, August 18.

Mason L. Weems ⊕ Brazoria, Texas; Tulane University, New Orleans, 1890; aged 59; died, August 15.

Joseph M. Beukers, Berkeley, Calif.; University of Leyden, Holland, 1890; aged 65; died, August 16.

James Hutton, Forest, Ont.; University of Victoria College, Cobourg, Ont., 1863; died, July 2.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

LYKO

An Alcoholic "Tonic" that "Opens Up Wonderful Visions"

In the latter months of last year the attention of THE JOURNAL was called to a heavy advertising campaign of the nostrum "Lyko," put out by the Lyko Medicine Company of Kansas City, Mo. Large display newspaper advertisements, from full page down, heralded this preparation as "The Great General Tonic" and offered a free sample bottle "to any one who asks for it." Among the inquiries that came into THE JOURNAL was one from a member of the medical corps at Fort Sam Houston, Texas, who wrote:

"It is requested that you tell us through your correspondence column, or by letter, the contents by analysis, of Lyko. It has been claimed that soldiers are using this as a beverage. The label on the bottle shows 23 per cent. alcohol. Can it be used in larger quantities than the dose shown on the bottle, and thus become a beverage?"

A few weeks later a county health officer in Tennessee wrote:

"I am sending you by express a bottle of Lyko, a preparation that is sold in this country, advertised as a great medicine, but used almost exclusively for drinking purposes. Will you please make an analysis and let me have your opinion?"

While Lyko was being advertised from the Pacific coast to Arkansas, Iowa and Texas, we did not find it on sale in Chicago—possibly because Chicago is not quite as arid as some of the other spots mentioned. We, therefore, asked the Tennessee physician to obtain some additional bottles of Lyko in order that the Association's chemical laboratory might analyze the stuff. The doctor was not able to send the extra bottles immediately because, as he wrote, "owing to the heavy sales of Lyko at this place the stores were out of the decoction at the time of your request." Finally, the stuff came and was turned over to the chemical laboratory.

While the analytical work was in progress an attempt was made to find out something about the Lyko Medicine Company. From what was learned it appears that the company was originally incorporated under the Missouri laws in February, 1918, with a nominal capital stock of $10,000. The incorporators were three individuals who it is claimed are, or were employees of the S. Hirsch Distilling Company, Kansas City, Mo. In December, 1919, the Lyko Medicine Company was reincorporated under the Delaware laws with an authorized capital stock of a million dollars, all common stock.

The names of the three incorporators of the new company are of little importance. They comprise (1) a Dover attorney who is in charge of the local office of a New York company that makes a business of organizing corporations and acting as their local registered agents, (2) the stenographer of this attorney and (3) a man who used to be a clerk but is at present acting as a state detective.

The officers of the Lyko Medicine Company under its new administration seem to be: Clarence A. Hirsch, President and Treasurer, Simon Hirsch, Vice-president, and A. H. Johnson, Secretary. According to the 1920 Kansas City telephone directory, the Lyko Medicine Company is located at 415 Delaware St., Kansas City, Mo., and its telephone number is Main 1830. The same directory gives a similar address and the same telephone number for the S. Hirsch Distilling Company.

What is Lyko? First, let the Lyko Medicine Company speak.

"The demand for a preparation of the character and nature of 'LYKO' is almost universal."

"It tends to stimulate the appetite, tone up the digestive organs and put them in condition to assimilate the nourishing properties of the food taken into the stomach."

"In addition to the unusual tonic value of 'LYKO,' it possesses splendid laxative qualities."

These claims, taken from a circular that comes in the trade package and subject to the restrictions of the National Food and Drugs Act, are comparatively conservative. The same circular professes to discuss "a few of the more important ingredients of which 'Lyko' is composed" and mentions caffein, kola, phenolphthalein and cascara sagrada. For some reason the circular does not discuss the most powerful ingredient in Lyko, alcohol, although the trade package, in accordance with the law, admits the presence of 23 per cent. of this drug.

The newspaper advertisements, not being subject to the penalties of the Food and Drugs Act, are more outspoken. For instance:

"Nothing will restore your strength, renew your health and revive your spirits like this master body builder."

"It reconstructs the decaying tissues . . ."

"This wonderful tonic will bring to you the physical vim and the mental keenness of perfect health—the capacity to do and to dare."

"It enriches the blood, restores worn-out tissues, soothes jangling and overwrought nerves, induces sound refreshing sleep, sharpens the appetite, tones up the digestion—in short, will put new life, new vigor and new vim in every fibre of your body."

"It relieves brain fag and physical exhaustion; builds up the nerves; strengthens the muscles; corrects digestive disorders and rehabilitates generally the weak, irritable and worn out."

Another Sleepless Night?
LYKO
The Great General Tonic
The Choice Prizes of Life Are Won By the Healthy and Strong
LYKO
Ten Years Younger Than His Years
LYKO
The Great General Tonic

Reproductions (reduced greatly) of some of the smaller Lyko advertisements.

Of course, if these claims were made in the trade package they would, undoubtedly, lay the Lyko Medicine Company open to prosecution by the federal authorities for misbranding. But they are not made on the trade package and lying in newspaper advertisements is still fairly safe. So much for what the manufacturers have to say about Lyko. Here is the report from the Chemical Laboratory of the American Medical Association:

CHEMISTS' REPORT

The specimen of Lyko examined was a dark red, turbid, almost odorless, liquid having a sweet taste and a neutral reaction to litmus. Ammonium salts, benzoates, citrates, bromids, iodids, heavy metals, salicylates and the purgative salts, such as magnesium sulphate and sodium phosphate, were absent as were also bitter drugs, such as gentian and columbo.

In the circular, which forms part of the trade package, the preparation is claimed to contain kola, cascara, caffein, phenolphthalein and "other ingredients" of "probable equal value." Possibly the "other ingredients" include the 23 per cent. of alcohol, the presence of which is admitted on the label.

Caffein, phenolphthalein, and extractives from an emodin-bearing (laxative) drug, probably debitterized cascara, each in small amounts, were present. Sucrose (cane sugar) was present. The presence of kola extractives was not demon-

strated although, as already stated, caffein, the chief medicinal constituent of kola was found. Glycyrrhiza (licorice) extractives were absent. No other medicinally active substance except alcohol was found.

Alcohol was determined, 22.17 per cent. by volume being found. This agrees substantially with the declaration on the label. The solids amounted to 10.1 gm. per 100 c.c., of which about 77 per cent. was sucrose (cane sugar). The determination of the caffein showed 0.1847 gm. of the dried alkaloid per 100 c.c. or about $^{85}/_{100}$ grain per fluid ounce.

After removal of the caffein the residual solution was acidified and shaken with ether. The ether extract amounted to 0.0724 gm. per 100 c.c., or about ⅓ grain per fluid ounce. Since the ether extract contains all of the phenolphthalein, as well as the emodin-like substances originally present in the mixture, it is apparent that the preparation is not very potently medicated. The relative proportions in which the phenolphthalein and cascara extractives are present is not very material since the total is so small.

That the chief active constituent in Lyko is alcohol is shown by the fact that a fluid ounce (one maximum recommended dose) of the preparation, after being dealcoholized, produced no effect after being swallowed by a healthy man. When three fluid ounces of the preparation (three doses) were dealcoholized and the residue taken, the effect was negative or possibly slightly laxative. A quantity of the dealcoholized material, equivalent to 5 fluid ounces (five doses) of the original preparation was taken at one dose; a laxative effect was observed but this was very moderate. Five ounces of Lyko are equivalent in alcoholic content to 2¼ ounces of whisky.

The examination, therefore, indicates that Lyko is essentially a sweetened solution containing about 22.2 per cent. of alcohol together with insignificant amounts of caffein, cascara extractives and phenolphthalein. There is no evidence to show that the product is sufficiently medicated to prevent its being used as a beverage.

The chemists' report makes plain the commercial shrewdness shown by the manufacturers in introducing their stuff by the free sample bottle route:

"We want you to try it at our expense because one trial will tell you more than all we can say."

The directions for taking Lyko call for "One to two tablespoonfuls, with or without water, before each meal and upon retiring." The person taking two tablespoonfuls of Lyko four times a day, in accordance with these directions, would be getting the daily alcohol equivalent of over two bottles of beer (3½ per cent. alcohol) or of nearly 2 ounces of whisky. No wonder:

"It opens up wonderful visions of the future to the down-cast, weary-laden souls depressed in spirit and body."

To all of which the attention of the Internal Revenue Department is respectfully directed.

Correspondence

NEEDS OF ROUMANIAN MEDICAL PROFESSION

To the Editor:—I wish to bring to attention the following extract from a letter of Professor Marinesco, a leading scientist and physician in Roumania.

. . . I believe that our American colleagues, whose country made such a noble contribution to victory, ought to take notice of the unhappy state of the Roumanian men of science which is due to the occupation of our country by the enemy. It is probably unknown that after the occupation we were in extreme distress, because all our instruments were then taken away or destroyed. A part of our libraries has been destroyed. Furthermore, since Roumania has no chemical industries, we do not possess the chemical reagents, etc., indispensable for scientific research. Allied European countries which would aid us, France, for instance, have been equally devastated.

Perhaps the United States, which has contributed so largely to the restoration of Europe, would make a grand gesture and help the investigators of our country by sending some instruments and a certain amount of reagents, so far as they are able to do so. They cannot be accepted gratuitously; but we believe that we shall be able to repay the debt later, when the unfavorable exchange no longer weighs so heavily upon our laboratory budgets.

Hoping that my prayer will find a favorable response among my American colleagues, we would like you to be our spokesman.

S. J. Meltzer, M.D.,
Rockefeller Institute, New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

"NATURE'S CREATION"

To the Editor:—Kindly let me know the analysis of a "patent medicine" that I have only recently heard of which is known as "The Nature's Creation Company's Discovery." It is manufactured in Columbus, Ohio, and the label is signed Mrs. J. M. Reynolds. This is a new one to me and is being introduced here by a woman, so that I thought it best to know the formula in order to be able to tell my patients what it is. H. G. Willson, M.D., Gallup, N. M.

Answer.—"Nature's Creation" is one of the fake "consumption cures." It was originally put on the market as an "absolute cure" for syphilis. At that time the exploiter especially warned the public against using "mercury and potash" in the treatment of syphilis. When the stuff was analyzed by the Association's chemists it was found to be essentially a solution of potassium iodid in a weakly alcoholic medium containing vegetable extractives and flavoring matter and small quantities of inorganic salts. The Journal has published several articles on the "Nature's Creation" humbug. The matter is reprinted in the pamphlet "Consumption Cures" prepared and issued by The Journal's Propaganda department. The cost of the pamphlet is 20 cents.

TREATMENT OF LEPROSY

To the Editor:—I have seen in The Journal (July 24, 1920, page 263), the results obtained with the ethyl esters from chaulmoogra oil in the treatment of leprosy, but I should like to know the mode of administration and also where this drug is on the market.

Please omit my name. R. A. P., Mexico.

Answer.—Following is the dosage and method of administration used by A. L. Dean (*Journal of Cutaneous Diseases*, June, 1919): The initial dose was $^1/_{10}$ c.c. intramuscularly, deep into the buttocks. The dose was increased $^1/_{10}$ c.c. each week until ½ c.c. was given, it was then increased ½ c.c. at each treatment until the amount given caused too severe a local reaction at the site of injection. This point varied in different patients. So far as we know this product has not been placed on the market. It is distinctly in the experimental stage and should not be used in a routine way.

Factory Hygiene.—Factory hygiene was first officially recognized in England in the factory act of 1802. Since those days the scope of factory legislation has broadened and has come to include not only the control of hours of work, length of shift, night work and so forth, but also the maintenance of cleanliness and sanitation in general, the prevention of accidents and the ill effects to health arising from certain operations, processes and dangerous trades. Particular attention has been given to the condition of employment of women and children, but latterly it has been more clearly recognized that the male worker also needs protection from injurious effects which may arise from his ordinary occupation. The necessary conditions for health are twofold, first, favorable conditions for the body itself, namely, food, air, exercise, cleanliness, warmth and suitable alternation between rest and work, and secondly a satisfactory environment, including a sanitary factory, reasonable hours of labor, good housing accommodation, and avoidance of injury or poisoning from industrial processes. When these conditions are fulfilled we may expect to find industrial workers enjoying healthier and longer lives.—*J. State M.*, July, 1920.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 5-6. Sec., Dr. Ancil Martin, Phoenix.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. C. B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 5. Sec., Dr. David A. Strickler, Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 12-15. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

GEORGIA: Atlanta, Oct. 12-14. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 5. Commissioner, Hon. Robert O. Jones, Boise.

ILLINOIS: Chicago, Sept. 20-23. Director, Francis W. Shepardson, State House, Springfield.

IOWA: Des Moines, Sept. 15-17. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 12-13. Sec., Dr. H. A. Dykes, Lebanon.

MASSACHUSETTS: Boston, Sept. 14-16. Sec., Dr. Walter P. Bowers, Room 144, State House, Boston.

MICHIGAN: Lansing, Oct. 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 5-7. Sec., Dr. Thomas S. McDavitt, St. Paul.

MONTANA: Helena, Oct. 5. Sec., Dr. S. A. Cooney, Helena.

NEW JERSEY: Trenton, Oct. 19-20. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 4-7. Assistant Prof. Examinations, Mr. Herbert J. Hamilton, Albany.

OKLAHOMA: Oklahoma City, Oct. 13-14. Sec., Dr. James M. Byrum, Shawnee.

PORTO RICO: San Juan, Oct. 5. Sec., Dr. M. Quevedo Baez, San Juan.

RHODE ISLAND: Providence, Oct. 7-8. Sec., Dr. Byron W. Richards, Providence.

WEST VIRGINIA: Charleston, Oct. 12. Sec., Dr. S. L. Jepson, Charleston.

WYOMING: Sheridan, Oct. 4-6. Sec., Dr. J. D. Shingle, Cheyenne.

California February Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written and oral examination held at Los Angeles Feb. 16-19, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 41 candidates who took the physician's and surgeon's examination, 27, including 8 osteopaths, passed and 14, including 8 osteopaths, failed. Of the 44 candidates who took the reciprocity practical, oral and written examination, 26 passed and 18 failed. One hundred and three candidates, including 4 osteopaths, were licensed through reciprocity. Four candidates were licensed on army credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surg., Los Angeles	(1919)	83.4, 87, 91.5,	93.1
College of Physicians and Surgeons, San Francisco	(1919)		79.7
Leland Stanford Junior University	(1918)	90.3, (1919)	75
University of Colorado	(1919)		79.5
University of Illinois	(1920)		89.1
Johns Hopkins University	(1919)		82.9
University of Maryland	(1919)		96.1
University of Minnesota Medical School	(1919)		90
Washington University Medical Department	(1917)		88.4
University of Nebraska College of Medicine	(1918)		85.2
New York Homeo. Med. Coll. and Flower Hosp.	(1917)		89.5
Okayama Special Medical School, Japan	(1900)	75, (1906)	75
National School of Medicine, Mexico	(1907)		78
University of San Salvador	(1907)		82
FAILED			
College of Phys. and Surgs., Los Angeles	(1917)	72.1, (1918)	71.4
College of Physicians and Surgeons, San Francisco	(1918)		71.2
Medical College of Nagoya	(1907)		58.5
Tokyo Charity Hosp. Spec. Med. School	(1914)	60.9, (1916)	67.5

RECIPROCITY PRACTICAL AND ORAL EXAMINATION

College	PASSED	Year Grad.	Reciprocity with
Bennett Coll. of Eclectic Med. and Surg.	(1897)		Minnesota
Hahnemann Med. Coll. and Hosp., Chicago	(1899)		Illinois
Rush Med. College (1891) Michigan, (1896) Missouri	(1897)		Minnesota
College of Physicians and Surgeons, Keokuk	(1877)		Illinois
Drake University	(1896)		Kansas
Tufts College Medical School	(1901),	(1905)	Mass.
Detroit College of Medicine	(1891)	Illinois, (1904)	Michigan
University of Michigan Medical School	(1887)		Minnesota
University of Minnesota Medical School	(1898)		Minnesota
Central Medical College of St. Joseph	(1900)		Kansas
St. Louis College of Physicians and Surgeons	(1897)		Iowa
University of Missouri	(1904)		Missouri
Long Island College Hospital	(1893)		New York
Ohio Medical University	(1895)		Ohio
Western Reserve University	(1893)		Ohio
Jefferson Medical College	(1890)	Neb., (1893) Mo., (1897)	Ohio
Memphis Hospital Medical College	(1900)		Oklahoma
McGill University	(1895)	Oregon, (1896)	N. Dakota
Victoria University	(1886)		Illinois
FAILED			
Denver and Gross College of Medicine	(1906)		
College of Physicians and Surgeons, Chicago	(1891),	(1898)	
Rush Medical College	(1896)		
Drake University	(1891)		
State University of Iowa Coll. of Homeo. Med.	(1885)		
Hospital College of Medicine, Louisville	(1876),	(1892)	
University of Michigan Medical School	(1876)		
University of Minnesota Medical School	(1895)		
Beaumont Hospital Medical College	(1900)		
Homeopathic Medical College of Missouri	(1902)		
Missouri Medical College	(1895)		
University of Buffalo	(1901)		
Cincinnati College of Medicine and Surgery	(1879)		
University of Oregon	(1896)		
University of Nashville	(1897),	(1901)	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles	(1916)		Nevada
Geo. Washington Univ.	(1906) Utah, (1907) S. Dak.,	1916)	Dist. Colum.
Howard University	(1906)		Dist. Colum.
Georgia Coll. of Eclectic Med. and Surg.	(1912)		Georgia
Bennett Coll. of Eclectic Med. and Surg.	(1902)	Illinois,	Minnesota
Chicago College of Medicine and Surgery	(1911),	(1917)	Illinois
College of Physicians and Surgeons, Chicago	(1902), (1906), (1909, 3),	(1912)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1900)		Iowa
Illinois Medical College	(1901)		Oregon
National Medical University	(1909)		Illinois
Northwestern University, (1904) Arizona, Illinois, (1906) Washington, (1908) Illinois, (1909) Utah, Illinois, (1911) Illinois	(1917)	Illinois,	Missouri
Rush Medical College (1897), (1904) Illinois, (1906) South Dakota	(1915, 3),	(1916)	Illinois
Medical College of Indiana	(1902)		Kansas
Drake University College of Medicine	(1910)		Iowa
Keokuk Medical College	(1903)		Iowa
State University of Iowa Coll. of Med.	(1904)		Iowa
University of Kansas	(1908)		Kansas
Kentucky School of Medicine	(1906)		Illinois
Louisville Medical College	(1905)		Arkansas
University of Louisville	(1909)	Minnesota, (1912)	Illinois
Medical School of Maine	(1914)		Hawaii
Baltimore Medical College	(1904)		New Hamp.
Johns Hopkins University, (1910) Maryland, (1912) Wisconsin, (1914) Maryland	(1915)	Maryland,	Minnesota
Harvard University	(1905)		Maine
Tufts College Medical School, (1912) Nevada, (1915) Massachusetts, Rhode Island	(1917)		Mass.
Michigan College of Medicine and Surgery	(1892)		Michigan
University of Michigan Med. School, (1890) Oregon, (1901) Ohio, (1909) Oklahoma	(1912)		Oregon
Hamline University	(1907)		Minnesota
Barnes Medical College	(1901)	Minnesota, (1910)	Illinois
Ensworth Medical College	(1905)		Kansas
Kansas City Hahnemann Medical College	(1912)		Kansas
National University of Arts and Sciences	(1917)		Missouri
St. Louis College of Phys. and Surgs.	(1918)		Missouri
John A. Creighton Medical College	(1905)	Iowa, (1910)	Montana
University of Nebraska Coll. of Med.	(1905), (1906),	(1908)	Nebraska
Columbia University	(1902)	New York, (1914)	Connecticut
Cornell University	(1913)		New York
Long Island College Hospital	(1913)		New York
New York Med. Coll. and Hosp. for Women	(1905)		New York
University of Buffalo	(1913)		New York
University of Bellevue Hosp. Med. Coll.	(1910)		New York
Eclectic Medical College, Cincinnati	(1918)		Ohio
University of Cincinnati	(1914)		Ohio
Toledo Medical College	(1904)		Ohio
Jefferson Medical College	(1911)	Virginia, (1917)	Penna.
Medico-Chirurgical Coll. of Phila.	(1905)	Penna., (1907)	New Jersey
University of Pennsylvania, (1905) Pennsylvania, Washington	(1907),	(1910), (1917)	Penna.
Woman's Medical College of Pennsylvania	(1908)		New York
University of Nashville	(1905)		Louisiana
Fort Worth School of Medicine	(1900)		Texas
Marquette University	(1913)		Washington
Milwaukee Medical College	(1904)		Wisconsin
University of Vienna, Austria	(1897)		Montana
Kyushu Imperial University, Japan	(1909)		Washington

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
George Washington University	(1899)		U. S. Army
Rush Medical College	(1916)		U. S. Army
Tulane University	(1905)		U. S. Army
University of Pennsylvania	(1897)		U. S. Army

Alabama July Examination

Dr. S. W. Welch, chairman, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 12-15, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 28 candidates examined, 27 passed and 1 failed. Five candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College	(1915)		84.4
University of Alabama	(1916)	89.7, (1920) 80.5, 87.7, 87.8, 88.4, 89.2, 90.3, 90.8, 91.5, 92.3.	
Howard University	(1919)		82.2
Emory University	(1920)		85.6

Tulane University.....(1918) 89.4, (1920) 84.5, 87.4, 88.7, 89.2, 89.3, 89.7.
Harvard University .....(1920) 88.4
Jefferson Medical College.....(1919) 93.3
Meharry Medical College.....(1920) 78.7
Memphis Hospital Medical College.....(1913) 76.9
University of the South.....(1907) 75.1
Medical College of Virgina.....(1920) 87.7
University of Toronto.....(1919) 91.1

FAILED

Meharry Medical College.....(1920) 72

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University		(1919)	Virginia
Rush Medical College		(1903)	Iowa
University of Pennsylvania		(1917)	Penna.
Meharry Medical College		(1917)	Kentucky, Tennessee

Georgia June Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Augusta, June 1-3, 1920, and at Atlanta, June 9-11, 1920. Each examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. The 15 candidates examined in the Augusta examination passed. Of the 52 candidates examined in the Atlanta examination, 46 passed and 6 failed. Thirty-two candidates were licensed by reciprocity. The following colleges were represented:

AUGUSTA EXAMINATION

College	PASSED	Year Grad.	Per Cent.
University of Georgia	(1920) 86.9, 87, 87, 87.2, 87.5, 87.6, 87.6, 88.1, 88.1, 88.3, 88.4, 88.7, 89.1, 90.6, 92.5.		

ATLANTA EXAMINATION

College	PASSED	Year Grad.	Per Cent.
Emory University	(1920) 82.6, 82.6, 82.9, 83.3, 83.5, 84.1, 84.2, 84.5, 84.9, 85.1, 85.2, 85.6, 86.2, 86.2, 86.8, 87.4, 87.8, 87.8, 88.3, 89.5, 89.7, 90.9, 91.1, 91.5, 91.7, 92, 92, 95.8.		
Harvard University		(1920)	88
North Carolina Medical College		(1917)	85.7
New York Med. Coll. and Hosp. for Women		(1911)	85.1
Columbia University		(1918)	82.5
Eclectic Medical College, Cincinnati		(1920)	88.6
Jefferson Medical College		(1920)	95.2, 86.3
Meharry Medical College	(1917) 82, (1919) 82.8, (1920) 80.1, 80.2, 80.3, 81, 83.7, 84.1, 84.3, 86.3.		
Vanderbilt University		(1915)	86.6

FAILED

Southern Coll. of Med. and Surgery, Atlanta		(1913)	66.8
Meharry Medical College	(1914) 73.3,	(1920)	76.5, 77.3
Memphis Hospital Medical College		(1913)	74.2
University of Nashville		(1900)	64.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1912)	(1919) Alabama
Birmingham Medical College		(1913)	Alabama
Atlanta Medical College		(1891 2)	Alabama
Northwestern Univ. Med. School		(1905)	Iowa, (1911) Maryland
Tulane University		(1909)	Alabama
College of Physicians and Surgeons, Baltimore		(1915)	W. Virginia
Johns Hopkins University		(1913)	Maryland, (1918) Virginia, 1918) Maryland
Maryland Medical College		(1909)	Maine
University of Buffalo		(1911)	New York
Columbia University		(1914)	Mississippi
Miami Medical College		(1906)	Minnesota
Jefferson Medical College		(1917)	Alabama
University of Pennsylvania		(1913)	N. Carolina
Chattanooga Medical College		(1903)	Alabama
Meharry Medical College		(1918, 2)	Tennessee, (1919, 3) Tennessee
University of Tennessee		(1915)	(1917) Tennessee
Vanderbilt University		(1913)	Mississippi, (1916, 2) Tennessee
Baylor University		(1919)	Tennessee
University of Texas		(1919)	Texas
Medical College of Virginia		(1914)	Virginia

Arizona July Examination

Dr. Ancil Martin, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, July 6-7, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago		(1912)	79.8
State University of Iowa College of Medicine		(1905)	76.9
Hospital College of Medicine, Louisville		(1906)	79.4
Tulane University		(1901)	78.5
Washington University		(1918)	83.3
Columbia University		(1918)	83.1
University of Tennessee		(1919)	79.4

FAILED

St. Louis College of Physicians and Surgeons		(1920)	66.8

Book Notices

THE PATHOLOGY OF INFLUENZA. By M. C. Winternitz, Isabel M. Wason and Frank P. McNamara. From the Brady Laboratory of Pathology and Bacteriology, Yale University School of Medicine and the New Haven Hospital. Cloth. Price, $15. Pp. 61, with illustrations. New Haven: Yale University Press, 1920.

This is the most elaborate and careful study of the changes produced in the tissues in influenza that has yet appeared, and constitutes an important contribution to the literature. The bacteriologic studies recorded give about the same results as obtained elsewhere in showing the presence of the usual "mouth organisms" that have gained access to the lung because it has already been injured by the special infectious agent. No relations could be demonstrated between the type of bacteria found in the lungs and the character of the associated pneumonic process. It is concluded that the lesions in the respiratory tract in epidemic influenza are peculiar to this disease, being characterized by an acute tracheobronchitis, associated with diffuse involvement of the pulmonary parenchyma, hyalization of the epithelium of the air passages and necrosis of the alveolar walls, dilatation of the terminal bronchioles, with necrotizing and organizing bronchiolitis, and, of course, various types of pneumonic exudates. Particular attention is directed to the extent and importance of the sequelae, such as obliterating bronchiolitis and bronchiolectasis and the very marked tendency to extensive proliferation of the alveolar and bronchiolar epithelium. The latter feature is so striking as to suggest the possibility that neoplasms may be expected to result as a sequel of influenza. The authors believe that the trachea and larger bronchi are demonstrated by the pathology of influenza and pulmonary gassing to play an important part in protecting the lung from infection. Both influenza and the war gases injure the upper respiratory tract so that the pulmonary parenchyma becomes vulnerable to bacteria from the mouth, and pneumonia results. The work is magnificently illustrated, and is a companion to the monograph on the pathologic effects of war gases issued from the Yale Medical School. It is to be regretted that for the purposes of publishing large plates showing gross specimens, it has been found necessary to make the book of a size that does not file well, and of a cost that greatly limits its circulation.

ERGEBNISSE DER GESAMTEN MEDIZIN. Unter Mitwirkung hervorragender Fachgelehrter herausgegeben von Prof. Th. Brugsch, Oberarzt der II. med. Klinik der Königlichen Charité in Berlin. Volume 1. Paper. Price, 240 marks. Pp. 657, with 174 illustrations. Berlin: Urban & Schwarzenberg, 1920.

This is the initial volume of a new medical serial to be edited by Brugsch. The intention is to publish one volume yearly, the contributors being specialists or research workers. It is intended primarily for the busy practitioner who is unable to keep up with the ever-growing large number of articles appearing in the various journals. This serial will present in the form of short and complete articles the various new phases of medicine with which the practitioner should be acquainted. The contributors to the first number are well known as leaders in their respective subjects. Paul Cohnheim writes on chronic gastritis, Frangenheim on carcinoma of the stomach, O. Naegeli on the leukemias, Boas on diseases of the bowel, Ludwig Meyer on infant feeding, Jochmann on serum therapy. There are articles on hypnotics, sedatives and heart tonics, the roentgen-ray treatment of tuberculosis, typhus fever, hemolytic jaundice and many others. There are numerous illustrations and several colored prints. The articles are complete, and the book as a whole makes a valuable reference volume.

THE LUNCH HOUR AT SCHOOL. By Katharine A. Fisher. Paper. Price, 5 cents. Pp. 62. Washington: Government Printing Office, 1920.

Special investigations in our large cities have revealed that the feeding of children at home is frequently deficient and that the luncheons taken at the noon hour in school are still more often far from nutritious and digestible. As a result of educational work, teachers are beginning to regard the school

lunch as a health project which should have an important place in school life. To satisfy the demand for brief and authoritative work on the subject, the Department of the Interior has just issued a bulletin on "The Lunch Hour at School." It is addressed especially to superintendents of schools and to schoolteachers, with a view to arousing interest and to stimulating provision of school lunches by the school organization itself. The best results are accomplished by taking the provision of food away from commercially interested concessionaires. Instructions are given as to how the interest of the community may be aroused and the parents of the children organized to aid the project. Lists of standard equipment are given and suitable menus outlined for institutions of various sizes according to the number of pupils who are to be fed at any one time. The labor problem receives special attention, and the use of students as aids is suggested. The pamphlet concludes by giving a list of selected references.

MODERN DENTISTRY. By Joseph Head, M.D., D.D.S., Dentist to the Jefferson Hospital, Philadelphia. Second edition. Cloth. Price, $6 net. Pp. 382, with 315 illustrations. Philadelphia: W. B. Saunders Company, 1920.

Modern dentistry, as presented by Dr. Head, deals with the subject as a branch of preventive medicine. He first discusses the etiology of mouth infection and then takes up in a special chapter its prevention. He attaches greater importance to the method of cleansing the teeth than to the medicament used as an accessory. Tooth brushes and floss silk are illustrated, and their correct use shown by proper diagrams. The third chapter takes up the subject of tooth enamel and saliva, with a section on dentifrices and mouth washes. The treatment of mouth infection is given careful consideration, and a special chapter deals with the use of vaccines, the final conclusion being that no single drug or vaccine can eliminate mouth infection when it is once entrenched. Vaccines have, however, been of apparent assistance in some cases. The remainder of the book it concerned with root canals and fillings; there are special chapters on children's teeth, on crowns, the replacing of lost teeth, uses of cement and the use of the roentgen ray. The book is conservative. It is well printed throughout. It will give the physician a good understanding of the elements of dentistry so that he may better cooperate with the dentist in necessary procedures.

Miscellany

DISCOVERY THAT THE SNAIL IS THE INTERMEDIATE HOST OF BILHARZIA

Dr. R. T. Leiper, helminthologist of the London School of Tropical Medicine, has made the important discovery that the snail is the intermediate host of *Bilharzia*. In Egypt bilharziasis is widespread and severe. Grave apprehension was therefore felt by the military authorities when, during the war, large bodies of troops were sent to Egypt. A special commission under the control of Dr. Leiper was therefore sent out to investigate the etiology of the disease. It was suspected that the worm entered its human host during bathing by puncturing the skin of the legs; but there was no knowledge as to how the worm got into the water in the first instance, though the suggestion had been made that possibly some water snail might play a part as an intermediate host. Dr. Leiper set to work near Cairo to collect and specifically determine all the fresh water mollusks, to dissect large numbers of all species found for the larvae of worms, to ascertain which, if any, species of mollusk showed attraction for *Bilharzia*, and to ascertain experimentally whether infection took place through the skin or by the mouth, or both ways. A great number of small native boys were hired to go and search the pools and canals for snails and shell fish and to bring these to the laboratory. A vast number of forms were thus obtained, and work was begun at once. Many examinations were carried out with only negative results, when at last *Bilharzia* was found in one of the mollusks. It soon became evident that numbers of this type of snail found at spots daily frequented, such as the praying ground and the embankment crossing, in front of the cafés, and at the bend of the canal where washing was carried on, were infected with *Bilharzia*. The same type of snail was common at other parts of the canal, but was not infected in these situations. Evidently, therefore, infection came from men to the snails. The next thing was to find out whether the snails could reinfect men. Dr. Leiper had by this time made the astuate observation that there were very few rats and mice in the neighborhood of the infected canals and pools. As he was anxious, if possible, to find an animal which could be experimentally infected with the disease, he set a rat-catcher to work to catch rats in these areas. But the rat-catcher reported that there were no rats nor mice to be caught. This seemed good enough evidence that these animals were susceptible to the disease, and so did not frequent the areas where it flourished. Rats were accordingly obtained from another region and exposed to infection, and one of these animals contracted the disease. Later it was found that, in addition to tame rats and mice, the desert rat from the pyramids and a species of monkey could be infected. Further experiments showed that either bathing in the water or drinking it was dangerous in the highest degree. The eggs of the worm on leaving the human host entered the bodies of the snails and underwent development in the snail. Not till six weeks later did they begin to leave the snail as small free-swimming animalcules known as cercaria. These have a spike on their bodies with which they pierce the skin of their human host and so enter his blood. But now came the question. How could the excellent and well-filtered water supply of Cairo contain these animalcules? Dr. Leiper discovered that in addition to the series of pipes supplying Cairo with filtered water there is a second system, carrying to the numerous gardens of Cairo unfiltered water drawn direct from the Nile in the neighborhood of the Kasr Nil bridge, a spot where in recent years numbers of European troops have, while bathing, become infected shortly after their arrival in Egypt. The children even of better class Egyptians are allowed to run about in the privacy of their own courtyards in a state of seminudity during the summer months, and are thus continually exposed to the risk of infection from the hose used in the garden or stable. The lower classes probably derive their infection from the same source, although under different circumstances. To them water is a dear commodity in Cairo. There is no free supply. In the poorer quarters, water is hawked about in large skins, and there is the standing inducement to the middleman to increase his margin of profit by arranging to draw his stock, possibly surreptitiously, through a friendly gardener from the unfiltered supply, for which the water companies make a lower charge. The problem of prevention is therefore to be solved by killing all the snails. To do this it is necessary to drain the pools or canals in which they live. Whether this is possible remains to be seen.

STANDARDS OF VISION FOR MOTOR DRIVERS

The Council of the British Ophthalmologists, impressed by the growing number of accidents from motor traffic, instituted an inquiry as to how far these might be due to defective vision of drivers. At present the only qualification for obtaining a license to drive a motor vehicle, other than a public conveyance, is that the applicant must be 17 years of age. The committee of inquiry has issued its report. The visual defects from which accidents may arise are thus classified: 1. Blindness in or loss of one eye. This limits the field of vision, and objects cannot be seen stereoscopically. But compensatory adjustments occur, as is well known, and one-eyed drivers are positive in believing themselves fully competent to drive with safety, though they must admit that a foreign body in the sound eye might disable them. 2. Conditions necessitating the habitual use of spectacles.

Obscuration of spectacles from without by mist, rain, dust or mud can to some extent be guarded against by adaptable screens. The restriction of the field of vision by ordinary spectacles does not seem to be a source of danger. It would in any case be much less than that due to the use of goggles. 3. Defective acuity of vision, both with and without spectacles. The standard of central acuity laid down for army chauffeurs was, without glasses, in one eye 6/18 and in the other 6/60, no distinction being made as to which eye should have the better vision. This standard should not be taken in civil life, in which there is an ample supply of drivers. 4. Restricted fields of vision and night blindness. For the quick perception of oncoming traffic or of objects approaching from either side, a full field of vision is the most important factor, rather than acute form sense in the center of the field, such as is tested by Snellen's types. 5. Diplopia.

A scheme of vision testing for licenses is put forward. Although desirable, it is held impracticable to subject to satisfactory sight test every applicant for a license. These recommendations are made: 1. Before a license is granted, the applicant should be required to show his ability to steer round corners and avoid obstacles. 2. Before renewal of the license, the applicant should be required to sign a statement that since the license was granted he has not suffered from any physical disability likely to interfere with his driving capacity. 3. If a licensed driver, who suffers from a visual defect, meets with an accident attributable to that defect, he should be liable to lose his license or have it endorsed. 4. Special sight tests for drivers should be instituted and granted by ophthalmic surgeons appointed for the purpose. These certificates should be of three grades: Grade A, certifying the holder's visual capacity to drive any kind of motor vehicle; Grade B, certifying the holder's visual capacity to drive any kind of vehicle other than a motor bus or tram car, and Grade C, certifying the holder's visual capacity to drive a motor tram car. For Grade A, every applicant, in addition to manifesting ability to steer a motor car satisfactorily in daylight, should be required in a trial trip at night to show himself capable of driving in dim light and under varying degrees of illumination. In examination by an ophthalmic surgeon he should show: (*a*) visual acuity of 6/9 in one eye and 6/24 in the other, without glasses; (*b*) a full vision in each eye; (*c*) no manifest squint, and (*d*) no double vision. For the Grade B certificate, every applicant, in addition to ability to steer a car satisfactorily in daylight, should be able to drive in dim light and under varying degrees of illumination. He should show (*a*) visual acuity of 6/9 in one eye and 6/24 in the other with glasses if necessary; (*b*) a full field of vision in each eye, and (*c*) no double vision. For the Grade C certificate the applicant should be capable of driving a motor tram car by day and by night under varying degrees of illumination. He should reach the same visual standards as for the Grade A certificate.

SMALLPOX IN FRANCE DURING THE WAR

Although epidemics of smallpox have generally been the regular accompaniments of wars, this was not the case in France during the war of 1914-1918. Throughout the period of hostilities, the intensive activity of the official vaccination services, the incessant appeal made to the public through the press, and the enforced prescriptions of the Conseil d'hygiène publique et de salubrité du departement de la Seine made it possible to avoid any widespread epidemic of smallpox in Paris. The incidence of the disease in Paris during the five years was as follows: In 1914 there were twelve cases of smallpox and one case of varioloid, of which nine cases of smallpox and the case of varioloid were before the war. In 1915 there was only one case of smallpox, but there were three cases of varioloid. In 1916 there was only one case of smallpox, that of an Arab who came from Algeria while the eruption was in full progress. In 1917 there were six cases of smallpox. In 1918, as the result of an imported case from Morocco and of several cases brought in from Algeria, forty-six cases developed in different parts of Paris without producing a general epidemic. Twenty-six deaths resulted from these cases.

In the matter of vaccinations, Dr. Guilhaud, chief of the vaccination service, has issued a report showing the number of inoculations carried out in Paris during the war: in 1914, 614,987; in 1915, 228,570; in 1916, 158,931; in 1917, 172,298, and in 1918, 209,725, which makes a total of 1,304,511 inoculations from Jan. 1, 1914, to Dec. 31, 1918.

While it is not denied that the law of 1902, whereby compulsory vaccination in three stages was established, exerted a beneficent influence on public health in general, it is suggested that the number of persons vaccinated during the course of hostilities was much greater than the number who were legally subject to vaccination according to the compulsory vaccination law. The main weakness of the law as enacted is that it leaves to the mercy of smallpox infection all persons over 21 years old. It is a well known fact that the real spreaders of contagion are recruited from among persons over 21 years old, on account of the long period from 21 to extreme old age during which they are free from any obligations with respect to vaccination. In order to combat this weakness of the law, the Conseil d'hygiène et de salubrité du département de la Seine issued an urgent appeal that all persons of whatsoever age who had not been successfully vaccinated for five years should voluntarily allow themselves to be vaccinated again.

It is also equally certain that the second legal stage of vaccination, namely, during the eleventh year of age, is too far removed from the first stage. Many children between the ages of 6 and 10 lose the immunity conferred by the first positive vaccination. Statistics confirm these facts. During the course of various series of vaccinations carried out in the primary schools, medical inspectors have found that among children around 6 years of age a percentage of takes equal to 36.68 per cent. of the total number vaccinated may at times be secured. This result shows that children ought to be revaccinated on entering school, namely, at 6 years of age, and again before finishing the earlier grades, that is, at about 13 years of age. This matter was made the subject of a circular issued by the prefect of the department of the Seine, under date of Nov. 3, 1914, and has since been carried out, in a general way at least, by the medical inspectors of schools.

The scarification method of performing vaccination, which is becoming more and more general in France, seems to explain in part the increase in the percentage of takes recorded there. Out of 60,840 revaccinations performed during 1915 in the primary schools, the medical inspectors secured 25,842 takes, or approximately 42 per cent.

It may be noted that almost all epidemics of smallpox occurring in France in recent years have begun with cases imported from abroad. This observation points to the necessity of greater vigilance in matters of vaccination in ports of embarkation and debarkation, which raises the very important question of compulsory vaccination of foreigners entering the country.

The repetition of epidemics and their possible spread are chargeable to the resistance or, perhaps it may be said, the indifference of the public to vaccination, as was pointed out to the Academy of Medicine by the lamented Dr. Wurtz. The law is inadequate to bring about complete prophylaxis, and even as regards those who are legally subject to vaccination, the law is seldom enforced, owing to the state of public opinion in the matter. Only by persuasion and education in matters of hygiene can public indifference be overcome. It would seem that the teachers in the public schools ought to be especially fitted to give the necessary instruction on the subject. Dr. Guilhaud suggests that a practical way to accomplish the desired result might be to accept a recent certificate of vaccination as a card of identification for general purposes. This would give additional value to a certificate of vaccination, would tend to increase the number of inoculations, and might reduce the number of those who refuse obedience to the law and thus make epidemics less frequent and less widespread.

Medicolegal

Restricting to Physicians the Giving of Certificates of Birth and Death

(Keiningham v. Blake (Md.), 109 Atl. R. 65)

The Court of Appeals of Maryland, in affirming an order dismissing a petition for a writ of mandamus to compel respondent Blake, local registrar of vital statistics, to register the petitioner as a physician entitled to file certificates of birth and death, holds constitutional the provision of the Maryland statute relating to osteopathy that nothing therein contained shall authorize any state or municipal officer "to accept from any osteopathic practitioner any birth or death certificate." The court says that the argument on behalf of the petitioner was largely directed to the support of the contention that osteopaths were physicians and as such were entitled to register with the local registrar of vital statistics, and to furnish him certificates of birth and death, under statutory provisions by which "physicians" are charged with such duties. But the express terms of the statute disposed of that contention. The vital question in the case was whether the prohibition against the acceptance of birth or death certificates from licensed osteopaths was a violation of any of their constitutional rights.

The enactment in question forms part of the code article entitled "Health," and its relation to that subject is obvious. It is therefore within the scope of the police power of the state, and should be sustained as an exercise of that power unless the discrimination it makes can be held to be plainly arbitrary and without any perceptible relation to the objects sought to be accomplished. All reasonable presumptions must be made in favor of the validity of the provision. The judgment of the legislature that such a regulation is proper and desirable should be respected and enforced by the courts if there is any rational theory on which it can be supported.

The separate classification, for licensing purposes, of practitioners of medicine and surgery and those practicing by manipulation only, cannot be held to be unreasonable. The methods of treatment, and the prescribed qualifications, differ in important particulars for the two classes of practitioners, and the differences by which they are actually distinguished suggest an adequate reason for their separate classification by statute.

The certificates of birth and death to which the statute involved in this case refers are required to contain such "items of information as the state registrar of vital statistics shall deem important or necessary," in addition to such facts as the date and place of a birth or a death, the name, sex and color of a child reported born, the name, age, color, occupation, condition and birthplace of a person reported to have died, the cause of death, duration of illness, and the name and address of the attending physician. It was the evident theory of the legislature that some of the information which the law directed, or the state registrar of vital statistics might deem necessary, to be included in the birth or death certificates, could be furnished more satisfactorily by a physician having the qualifications demanded by the statute of practitioners of medicine and surgery than by those who were licensed to practice osteopathy exclusively. As to the real necessity for making such a distinction, this court has no right to decide. The only inquiry this court is authorized to make is whether the action of the legislature in restricting the means and agencies by which vital statistics are to be obtained is clearly unreasonable.

In the opinion of the court, the discrimination which it is considering in the present case is not so clearly arbitrary as to justify the court in declaring it void. It relates solely to the collection of vital statistics. The legislature has the undoubted right to determine as to the methods to be employed in obtaining such information for the use of the public. Its designation of certain agencies for that purpose, in the statute under consideration, is not such an obvious abuse of its discretion as to authorize the court to substitute its own for the legislative judgment and to refuse to recognize the provision as a valid enactment.

Liability of Sanatorium or Private Hospital

(Meridian Sanatorium v. Scruggs (Miss.), 83 So. R. 532)

The Supreme Court of Mississippi, in affirming a judgment in favor of Mrs. Scruggs, the plaintiff, for damages alleged to have been sustained in having her right foot and ankle seriously burned by a hot water bottle or bag after an operation had been performed on her, says that the defendant contended that the injury to the plaintiff's foot was caused from shoes, and that her foot was blistered when she reached the hospital; that her system was infected with septic poison, caused from the accumulated pus in her fallopian tubes, which existed at the time of the operation; that such pus was absorbed into the system, poisoning her body; that such sores were likely to result from such poison, and in the opinion of the medical witnesses the injury was caused from such condition. The medical witnesses also testified that a burn would not be infected as this place was infected, unless it was inoculated from external causes or application. But the court thinks that the evidence was ample to support a verdict; and it holds that a hospital conducted for private gain is liable in damages to patients for injuries resulting from negligence of the nurses and employees. A patient is generally admitted to a hospital conducted for private gain under either an expressed or an implied obligation that he receive such reasonable care and attention as his mental and physical condition, if known, my require.

Using Unfit Ether—Rules of Liability and Evidence

(Moehlenbrock v. Parke Davis & Co. et al. (Minn.), 176 N. W. R. 169)

The Supreme Court of Minnesota, in this action brought against the manufacturer of certain ether and two surgeons, Dr. John B. Rosenwald and a Dr. Andrews, who used it, affirms an order denying the surgeons a new trial after a verdict was rendered against all of the defendants, in which a young man in good general health submitted to an operation by the surgeons, for the removal of his tonsils, and he never recovered from the administration of the ether, but died as a result in a few hours. That there was fault somewhere, the court says, was clear. On a former appeal taken by the manufacturer, this court held (141 Minn. 154; 169 N. W. 541) that there was evidence to sustain a finding that the ether was unfit for use, that its use was dangerous to life, that the manufacturer was negligent in putting it on sale, and that its use was a proximate cause of the patient's death. One of the defendant surgeons testified that during the operation the patient came out rather quickly from the ether, so he administered a little bit more, but noticed that it was hard fully to relax the patient, who seemed to resist every time an attempt was made to remove the tonsils, and the witness did not like to push the anesthetic because when he did push it a little the patient became cyanotic. The other surgeon said the trouble was of such a nature that if the operation had not been partly completed and it had been a long operation he would not have finished it; would not, if it would have taken half or three quarters of an hour. But there was evidence that the administration of ether extended over three quarters of an hour. Moreover, it was alleged that there was want of proper care after the operation in that, very soon after it, cyanosis appeared and the patient was in a very critical condition until about noon, when he died, and that the defendant surgeons neglected to give him the constant care which the critical nature of his case required. The court holds that the evidence in the case was sufficient to sustain a finding that the surgeons were negligent in administering to a patient ether that was unfit for use, and in their care after the ether was administered.

The skill and diligence which the law requires of a physician or surgeon is such as is usually exercised by others of the same school. He is not necessarily liable for malpractice because of a bad result. He must often act promptly, on his best judgment, and he is not liable for injuries arising, without negligence from honest errors of judgment. But this is an exception to general rules of negligence and the exception is not absolute. Every act of his is in a sense an exercise of judgment and usually of honest judgment. Yet it may be negligent. He might be honest in his judgment that he could

leave certain details to an assistant and yet be liable for negligence in doing so. He is liable if his mistake of judgment is so gross as to constitute negligence. He is bound to observe plain physical laws; or he may be liable when his wrong concerns physical facts and is governed by ordinary principles of intelligence. If a surgeon persists in the use of an anesthetic after warning which would impel one of reasonable prudence to desist, he should be held to answer for the consequences.

The defendant surgeons insisted that since no expert witness testified that they did or omitted to do anything contrary to good surgery and practice, it was the duty of the court to direct a verdict in their favor. But the supreme court does not concur in this contention. From the testimony of the defendant surgeons, and from common knowledge of physical facts and laws, the jury might infer that if they had desisted from the use of the ether at the first sign of danger, the patient's life might have been spared, and that reasonable prudence required them to do so. It is only in cases wherein the evidence and the facts to be deduced therefrom are undisputed, and the case concerns a matter of science or specialized art, or other matters of which a layman can have no knowledge, that the opinion of experts is conclusive. This was not such a case. For similar reasons the testimony of a physician exonerating the defendant surgeons was not conclusive.

Nor was it error to receive the testimony of a physician as to the effect of the use of ether from the same container on the following day. That testimony tended to show the character of the ether.

Aiding in Violations of Harrison Narcotic Law

(Doremus v. United States (U. S.), 262 Fed. R. 849)

The United States Circuit Court of Appeals, Fifth Circuit, in affirming a judgment of conviction of defendant Doremus, says that he was a physician who was duly registered as such with the collector of internal revenue and had paid the tax. He was charged with having unlawfully and wilfully aided and abetted certain named druggists in making illegal sales of morphin and cocain, by giving the persons to whom the sales were alleged to have been made prescriptions, which were by them presented to the druggists and filled by the druggists. The filling of the prescriptions was alleged to constitute the illegal sales, which the defendant was charged with having aided and abetted. The persons to whom the prescriptions were issued were at liberty to have them filled by any druggist selected by them. There was no preconcert between the physician and druggists charged. It was charged that the defendant contemplated that his prescriptions would be filled by druggists who knew that they were issued to gratify the appetite of addicts for the drugs, and not for the alleviation of suffering or the cure of disease. The illegality in the sale was charged to have consisted in the fact that the sale was made neither to one who had or was entitled to have an order blank, nor was it made on the prescription of a physician within the meaning of exception (*b*) of Section 2 of the Harrison act, which exception is: "To the sale, dispensing or distribution of the aforesaid drugs by a dealer to a consumer under and in pursuance of a written prescription issued by a physician . . . registered under this act." The indictment was questioned on the idea that it alleged that the drugs were furnished by the druggists on written prescriptions of the defendant, a registered physician, who had paid the tax, and hence that they were within the terms of the exception, and that, as no crime was committed by the druggist, no aiding and abetting could be charged against the physician. The indictment also charged in effect that the prescriptions were issued by the physician with the purpose of gratifying the appetite of the addict, and with no intent to cure disease or alleviate suffering, and that this was known to the druggist when he filled the prescription. The question was presented whether a prescription issued under such circumstances is covered by the exception. The court holds that it is not; and that if a prescription issued under such circumstances is not a prescription protected by exception (*b*) of Section 2 of the act, then the druggist who fills it, knowing the purpose and circumstances under which it was issued, makes a sale in violation of the law; i. e., one not on an order blank, and not in pursuance of a prescription. The physician who issues the prescription for the purpose mentioned, knowing it is to be filled by a druggist who knows of its illegality, aids and abets the druggist in violating Section 2 of the act by the making of an illegal sale.

The druggists were under no affirmative duty to make inquiry. Knowledge was essential to guilt on their part. It might be shown by direct proof or inferred from circumstances. But, if it was established in neither way, guilt would not exist. A negative failure to inquire would not take the place of knowledge. The court thinks that from the facts proved reasonable men could have drawn but the one inference, namely, that two druggists must have known when they filled the defendant's prescriptions that they were not given to treat disease or to alleviate suffering, but to gratify the appetites of the persons to whom they were given. The court was led to this conclusion from the undisputed facts that the defendant issued prescriptions only for narcotics; that many of the alleged patients were described in his prescriptions as addicts, and had the physical appearance of such; that the prescriptions were issued to the same persons repeatedly and over long periods of time and without diminution in the quantity prescribed, indicating that no cure by reduction was intended by the defendant. It is inconceivable that a pharmacist would be ignorant of the character of the prescriptions in view of the course of business established by the evidence. The druggists concerned conducted their business in person. If the proper inference to be drawn from circumstances established by undisputed testimony was one on which the minds of reasonable men could not differ, an infirmity in the court's definition of knowledge could not have been harmful to the defendant.

Color Blindness Not Total and Permanent Blindness

(Fallin v. Locomotive Engineers' Mut. Life & Accident Ins. Assn. (Ga.), 102 S. E. R. 177)

The Court of Appeals of Georgia, Division No. 2, in affirming a judgment in favor of the defendant, was governed by the terms of a certificate or policy of insurance issued by the defendant. This provided that "any member of this association . . . sustaining the total or permanent loss of sight in one or both eyes shall receive the full amount of his insurance. . . . This association will not recognize a claim for the insurance of any certificate holder for impaired eyesight, but for total and permanent blindness only in one or both eyes." The plaintiff brought this action seeking to recover for total and permanent blindness, alleging that he had become color blind in both eyes. But the court holds that there was no error in sustaining a general demurrer and dismissing the case, as under the terms of the policy or certificate the defendant association was not liable, as color blindness did not amount to total and permanent blindness within the meaning of the policy or certificate.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Otolaryng., Kansas City, Mo., Oct. 14-16.
Amer. Assn. of Electro-Therapy & Radiology, Atlantic City, Sept. 14-17.
Amer. Assn. of Obstetricians and Gynecologists, Atlantic City, Sept. 20-22.
American Association of Railway Surgeons, Chicago, Oct. 6-8.
American Child Hygiene Association, St. Louis, Mo., Oct. 11-13.
American Public Health Association, San Francisco, Sept. 13-17.
American Roentgen Ray Society, Minneapolis, Sept. 14-17.
Delaware State Medical Society, Wilmington, Oct. 11-12.
Indiana State Medical Association, South Bend, Sept. 23-25.
Kentucky State Medical Association, Lexington, Sept. 27-30.
Minnesota State Medical Association, St. Paul, Sept. 29-30.
Mississippi Valley Medical Association, Chicago, Oct. 26-28.
New England Surgical Society, Providence, R. I., Oct. 6-7.
New Mexico Medical Society, Roswell, Oct. 15-16.
Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 4-7.
Vermont State Medical Society, Rutland, Oct. 7-8.
Virginia, Medical Society of, Petersburg, Oct. 26-29.
Washington State Medical Association, Tacoma, Sept. 16-17.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July 15, 1920, **27**, No. 3

Heart Musculature of Atria. J. W. Papez, Atlanta, Ga.—p. 255.
Studies on Red Bone Marrow. H. E. Jordan, Charlottesville, Va.—p. 287.
Finer Ramifications of Human Lung. C. Ogawa, Kyoto, Japan.—p. 315.
Histology of Respiratory Spaces of Vertebrate Lungs. C. Ogawa, Kyoto, Japan.—p. 333.

American Journal of Diseases of Children, Chicago

August, 1920, **20**, No. 2

*Duct Sign in Mumps. D. M. Cowie, Ann Arbor, Mich.—p. 75.
*Acute Cerebrocerebellar Ataxia. J. P. C. Griffith, Philadelphia.—p. 82.
*Effect of Diphtheria on Heart. H. McCulloch, St. Louis.—p. 87.
*New Method of Diagnosis of Peritonitis in Infancy and Childhood. Bernard Denzer, New York.—p. 111.
Twenty-Four Hour Schedule for School Boys. R. M. Smith, Boston.—p. 113.
Pneumonia in Infancy and Childhood During Recent Epidemics. H. Heiman, New York.—p. 117.
Case of Purpura with Symmetrical Gangrene of Fingers. M. Michael, Chicago.—p. 124.
Elephantiasis Congenita Angiomatosa (Unna). M. K. Miller and K. M. Nelson, Chicago.—p. 127.
Syphilis in Infancy and Childhood. P. C. Jeans, St. Louis.—p. 132.

Duct Sign in Mumps.—It has been noted by Cowie that in a case of mumps, if the buccal mucous membrane is well separated from the teeth with a spoon handle and viewed in a good light, the orifice of Steno's duct on the affected side or sides will present a reddened spot measuring from 1 to 2 mm. in diameter. The duct will usually be found to project beyond the surface of the mucous membrane from 1 to 3 mm. In other words, the duct becomes teatulated. The duct is edematous and is usually pale, as a whole, thus accentuating the red central spot which, at times, gives the appearance of a minute ring because of the central opening which may appear darker. In some cases the greater part of the teating is slightly injected. Minute hemorrhagic points may be seen scattered over an area surrounding the duct as great as 2 cm. in diameter. The orifice of the duct is tumefied and from it, at times, may be seen to exude a limpid fluid. The involvement of the duct is a progressive and retrogressive change. The spot usually appears first and is followed by teatulation with retrogression in the reverse order. Whether the duct sign is pathognomonic of specific parotitis or is present in other acute inflammatory conditions of the parotid gland has not been determined. The duct sign should be regarded simply as corroborative evidence of parotid gland involvement.

Cerebrocerebellar Ataxia.—Four cases are reported by Griffith to emphasize that there is a condition not common, but still certainly more frequent than ordinarily supposed, in which an acute hemorrhagic encephalitis involves the cerebellum, and which could be designated "acute cerebellar encephalitis." With this are always combined symptoms indicating an involvement of the large brain as well, and the title "cerebrocerebellar encephalitis," or "cerebrocerebello-bulbar encephalitis," is consequently to be preferred. The degree to which the process involves one or another part of the brain varies with the case; in some instances the cerebellar lesions predominating, in others the cerebral; but in all in the category of cerebellar encephalitis there is, as stated, a combination of the symptoms affecting both regions. In very many more instances the cerebellum escapes entirely, so far as symptoms indicate; but to these no reference is made here. The cause of this cerebrocerebellar encephalitis varies decidedly. In the majority of the cases previously reported in medical literature, some infectious disease had preceded the attack. This was true of two of Griffith's cases, but no such connection could be discovered in the other two. Unconsciousness, ataxia, affection of speech, disturbance of mentality, nystagmus, "loss of power," and active tendon reflexes are the symptoms seen most often. Vertigo is conspicuous by its absence. The prognosis, as far as life is concerned, is good. Of the seventeen cases collected from medical literature in my earlier report, complete recovery is known to have taken place in a considerable number, and it is probable that this was true of a number more. So far as statistics go, it appears that the disease leaves no traces in the majority of instances.

Effect of Diphtheria on Heart.—Nineteen cases of diphtheria from a group of eighty studied by McCulloch showed evidence of cardiac disturbance. The morality rate was 100 per cent. Patients whose heart muscle alone is involved depend for their recovery largely on the ability to preserve a cardiac reserve sufficient for their needs. The moment this reserve is used up, cardiac failure results. In these cases evidence was obtained that severe functional changes occur, causing disturbances in the cardiac mechanism. McCulloch says that the occurrence of myocarditis following diphtheria is largely beyond control; although the outcome is determined at least in some cases, by the protection the heart receives during the course of the disease and during convalescence. Myocarditis due to diphtheria has a definite position among those factors that lead to chronic heart disease later in life.

Diagnosing Peritonitis by Puncture. — The procedure employed by Denzer is as follows: the skin of the abdomen is swabbed with iodin and the usual precautions are taken to determine bladder distention. A steel needle, about number 17 gage, is used to puncture the skin in the midline about one-half inch below the umbilicus. The glass needle is inserted through this opening and then, held almost perpendicular to the surface of the skin, it is firmly pushed inward until the sudden release of pressure indicates that the needle has entered the peritoneal cavity. By making the pressure parallel to the long axis of the needle the likelihood of breaking the needle is decreased. In two cases of ascites, before a clinical diagnosis of excessive fluid could be established, puncture demonstrated the presence of fluid. In one case 0.5 c.c. was obtained. In the only case of peritonitis in which this procedure was tried, purulent fluid was obtained. The amount was ample for culture; smears showed great numbers of gram-positive cocci in chains. This experience, brief as it is, Denzer believes, establishes abdominal puncture with a capillary tube as a possible method for the diagnosis of intra-abdominal exudates.

American Journal of Insanity, Baltimore

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Intelligence and Psychosis. F. L. Wells and C. M. Kelley, Waverly, Mass.—p. 17.
Outpatient Psychiatry. A. Myerson, New York.—p. 47.
Emotional Exaltation as a Remedy for Obsessional Palsy. A Study of Barrett-Browning Courtship. J. C. Kiernan, Chicago.—p. 75.
Certain Anomaly of Gyration in Brains of Insane. L. G. Lowrey, Danvers, Mass.—p. 87.
Some Mechanisms of Paraphrenia. M. K. Isham, New York.—p. 91.
Reeducation of Demented Patients. W. A. Bryan, Danvers, Mass.—p. 99.
Case with Symptoms of Dercum's Disease and Hysterical Manifestations. S. N. Clark, Chicago.—p. 113.

American Journal of Medical Sciences, Philadelphia

August, 1920, **160**, No. 2

*Major Trigeminal Neuralgias and Their Surgical Treatment Based on Experiences with 332 Gasserian Operations. H. Cushing, Boston.—p. 157.
Number of Roentgenograms and Roentgen-Ray Burns. W. D. Witherbee, New York.—p. 184.
*Comparative Studies of Toxicity of Arsphenamin and Neoarsphenamin. J. F. Schamberg, J. A. Kolmer, G. W. Raiziss, Philadelphia.—p. 188.
*Appendicostomy and Cecostomy for Intestinal Stasis in Epilepsy and Neurasthenia. F. W. White, Boston.—p. 199.
Neuroblastoma Sympathicum: Report of Case. P. C. Gunby, Rochester, Minn.—p. 207.
*Influenza in Tuberculous. M. Fishberg and E. P. Boas, New York.—p. 214.
*Chemical Study of Blood Changes Following Roentgen-Ray Treatment of Leukemia. C. L. Martin and W. Denis, Boston.—p. 223.
Chronic Lung Disease Following Influenza Pandemic of 1918-1919. M. J. Radin, New York.—p. 233.
Pneumonia at a Base Hospital, 1918-1919. H. J. John, Fort Sam Houston, Tex.—p. 244.
*Relation of Housing to Pulmonary Tuberculosis. Report on 18,891 Cases. F. F. D. Reckord, Harrisburg, Pa.—p. 259.

Trigeminal Neuralgia.—Five types of facial neuralgia capable of being mistaken for trigeminal neuralgia are described by Cushing; those ascribed to the sphenopalatine ganglion, those secondary to zoster, those attributed to the geniculate ganglion, those accompanying certain cases of convulsive tic, and, lastly, those due to an involvement of the trigeminus by tumors. Minor trigeminal neuralgias are distinguished from major trigeminal neuralgias, for which in Cushing's opinion the Gasserian operation is unquestionably the proper therapeutic procedure. In the case of the five types of pseudotrigeminal neuralgia there is every reason to refrain, if possible, from a trigeminal neurectomy.

Comparative Toxicity of Arsphenamin and Neo-Arsphenamin.—The results of toxicity tests conducted by intravenous injection of rats with arsphenamin and neo-arsphenamin are detailed by Schamberg and others. The highest tolerated doses of arsphenamin and neo-arsphenamin administered by intravenous injection to healthy rats are about 0.105 and 0.254 gm. per kilogram of body weight, respectively; neo-arsphenamin is therefore about 2.4 times less toxic than arsphenamin. Calculated on the basis of 70 kg. as the body weight of an average person, the highest tolerated dose of arsphenamin may be placed 7.35 gm. and of neo-arsphenamin at 17.5 gm., providing the tissues of persons are approximately of the same susceptibility; comparative tests among rabbits, rats and mice in which the same amounts of drugs were given per gram of body weight indicate, however, that the larger and heavier animals are more susceptible and very probably human subjects cannot tolerate these substances in doses proportionate to body weight as established in animals. By subcutaneous injection in mice neo-arsphenamin was found to be half as toxic as arsphenamin but when administered subcutaneously to rats, neo-arsphenamin was found twice as toxic as arsphenamin. Insofar as the toxicity of arsphenamin and neo-arsphenamin may be determined by intravenous injection of solutions in rats, the single dose of arsphenamin commonly administered (0.6 gm.) may be said to be about twelve times less than the highest tolerated dose and the highest single dose of neo-arsphenamin commonly injected (0.9 gm.) is about nineteen times less; from the standpoint of margin of safety larger amounts of neo-arsphenamin may be given and maintain the same ratio between dosis therapeutica and dosis tolerata, as apparently exists with arsphenamin.

Appendicostomy in Epilepsy.—In the case of two patients with neurasthenic symptoms and two with epilepsy—who had a considerable degree of intestinal stasis, appendicostomy or cecostomy was done with subsequent washing out of the large intestine for a period of six to twenty-six months. The operation was done on the theory that delay in the passage of the contents of the colon and possible absorption of toxic material was responsible for some or all of these symptoms, and that the patient would be relieved by keeping the bowel well cleaned out. The patients were glad that the operation was done; one neurasthenic patient was definitely and permanently improved and one was not. In both epileptic cases the immediate results were fair or good (two to eight months without attacks). The late results were unsatisfactory. White has hesitated to advise operation in later similar cases in both groups.

Influenza in Tuberculosis.—The observations made by Fishberg and Boas do not indicate that the anergic state brought about by influenza had any influence on the incidence, course and termination of this disease in the tuberculous.

Blood Changes in Leukemia Following Roentgenotherapy.—Results are reported by Martin and Denis on four cases of myelogenous leukemia in which the chemical occurring in certain of the nonprotein constituents of the blood during roentgen-ray treatment have been followed. In the more severe cases the nonprotein nitrogen was extremely high; after treatment a gradual but steady fall was noted. In view of the fact that the creatinin values are invariably normal and that in our most severe case urea accounted for only 20 per cent. of the nonprotein nitrogen fraction (instead of the usual 50 per cent.), the suggestion is made that in leukemia there is present, possibly as a constituent of the white cells, some nitrogenous constituent not accounted for in the present scheme of microblood analysis. The uric acid content of the blood was much increased, but a large diminution in the number of white cells which occurred as a result of treatment no appreciable decrease in this constituent.

Housing and Tuberculosis—Answering the question: What methods shall be used to improve the home conditions and occupational environment of our people? Reckord points out that if the children are to be the sanitarians of the future, there must be systematic health instruction in the public schools More publicity is needed, so as to place the needs of a town or city before the general public, who may be ignorant of existing conditions Greater effort should be made in connection with the establishment of fresh-air schools, and rounding up in the communities and rural districts the children, who are pretuberculous or in the active process of the disease and in providing treatment for them. It is important and necessary that employers be kept reminded as to their duty to their employees. The establishing of health centers in each city and in representative towns of the rural districts, which shall be the centers of all activities pertaining to the uplift of the community. It is important to constantly keep before the public, sick or well, the value of sunlight. Every sanitary housing plan which does not take into account the sanitation or personal hygiene of its occupants must fail. It is the duty of every physician to influence public opinion, that the evils incident to bad housing, occupational environment and sanitation may be improved, so that the children, the hope of the future, may be given a chance.

American Journal of Ophthalmology, Chicago

April, 1920, **3**, No. 4

Symmetric Macular Degeneration in a Brother and Sister. B. Chance, Philadelphia.—p. 241.
Radium in Treatment of Diseases of Eye and Adnexa. G. B. New and W. L. Benedict, Rochester, Minn.—p. 244.
Free Dermic Grafts for Correction of Cicatricial Ectropion. J. M. Wheeler, New York.—p. 251.
Early Surgical Treatment of Burns of Conjunctiva. R. Denig, New York.—p. 256.
Relation of Sighting Eye to Measurement of Heterophoria. A Preliminary Report. P. Dolman, San Francisco.—p. 258.
Tuberculosis of Eye in Army. H. H. Stark, El Paso, Tex.—p. 262.
Practical Considerations in Connection with Insufficiency of Convergence of Visual Axes. J. M. Banister, Omaha.—p. 269.
Subconjunctival Cataract Operations. W. H. Lowell, Boston.—p. 275.
Proper Time for Operation on Congenital Cataract. M. H. Post, St. Louis.—p. 277.
Adventitious Hyaloid Membrane Following Operation for Secondary Cataract. S. L. Ziegler, Philadelphia.—p. 280.
Complications in Intracapsular Extraction of Cataract. J. E. Sternberg, Boston.—p. 282.

Annals of Surgery, Philadelphia

August, 1920, **72**, No. 2

Goiter. M. F. Porter, Ft. Wayne, Ind.—p. 129.
Adenoma with Hyperthyroidism. C. H. Mayo, Rochester, Minn.—p. 134.
Special Consideration of Toxic Adenoma in Relation to Exophthalmic Goiter. G. W. Crile, Cleveland.—p. 141.
*Results of Operation for Adenoma with Hyperthyroidism and Exophthalmic Goiter. E. S. Judd, Rochester, Minn.—p. 145.
Toxic Goiter. W. I. Terry, San Francisco.—p. 152.
Management of Toxic Goiter from Surgical Point of View. C. H. Frazier, Philadelphia.—p. 155.
*"Tourniquet Operation" in Toxic and Other Goiters. L. Freeman, Denver,—p. 161.
Relationship Between Ranula and Branchiogenetic Cysts. J. E. Thompson, Galveston, Tex.—p. 164.
*Late Results after Radical Operation for Cancer of Breast. W. Meyer, New York.—p. 177.
Requirements of Technic in Operations for Cancer of Breast. J. N. Jackson, Kansas City, Mo.—p. 181.
*Traumatic Fat Necrosis of Female Breast and Its Differentiation from Carcinoma. B. J. Lee and F. Adair, New York.—p. 188.
Case of Hyperplastic Tuberculosis of Small Intestine. J. Ransohoff, Cincinnati.—p. 196.
Acute Intestinal Obstruction, Cause of Continued High Mortality; How This May be Reduced. J. E. Summers, Omaha.—p. 201.
Causes of Death by Acute Appendicitis After Operation. A. MacLaren, St. Paul.—p. 207.
*Operation for Cure of Large Ventral Hernia. C. L. Gibson, New York.—p. 214.
Case of Cancer of Ovary Invading Sigmoid Flexure. P. E. Truesdale, Fall River, Mass.—p. 218.
Radical Treatment of Roentgen-Ray Burns. J. S. Davis, Baltimore.—p. 224.
Etiology, Pathology and Clinical Features of Benign Exostoses. F. Eliot, New York.—p. 228.
*Sarcoma of Clavicle; End-Results Following Total Excision. W. B Coley, New York.—p. 231.

Thyroidectomy as a Curative Procedure.—Judd claims that thyroidectomy will cure more than 65 per cent. of patients with the more severe types of thyroidism. If the patients could be treated earlier and with a better understanding of the plan of treatment, in all probability this percentage would be increased considerably. More than 80 per cent. of patients with adenoma with hyperthyroidism can be relieved of their toxic symptoms and a cure obtained by thyroidectomy. A higher percentage of cures would undoubtedly be obtained if the patients were all operated on before there is any evidence of edema or terminal degeneration.

Tourniquet Operation for Goiter.—Freeman's operation has for its object the placing of a tourniquet around the base of each lobe, before partial excision, so as to control hemorrhage by compression of all the vessels without injury to the nerves or parathyroids. This is done by means of two wires, one on either side of the base of the lobe, held in place by elastic bands passing through the glandular substance.

Results of Operation for Breast Cancer.—Meyer has operated for breast cancer on five patients who are alive and well from twelve to twenty-five and one-half years after operation.

Traumatic Fat Necrosis of Mammae.—Traumatic fat necrosis of the female breast clinically, resembles carcinoma of the breast more than any other tumor. A distinct history of trauma to the breast and a well-circumscribed, firm mass, showing rapid increase in size, unassociated with pain and without axillary nodes that are firm, suggest the possibility of fat necrosis. Local removal of such a mass is justifiable if a proper gross diagnosis can be made in the operating room. Should the gross examination reveal carcinoma, complete amputation may then be performed. The diagnosis of traumatic fat necrosis of the breast by gross examination is possible. The gross features of this lesion should, therefore, be clearly understood by every surgeon. Lee and Adair believe that further lines of research, along chemical as well as along morphological lines, may throw additional light on the real nature of this process.

Operation for Ventral Hernia.—The main principle of Gibson's operation first described in 1916 is to close the gap chiefly by approximating the freshened edges of the sheath of the rectus, tension being relieved by releasing incisions parallel to the line of suture an either side. This procedure is exactly similar to the operation for closure of cleft palate, according to Langenbeck, by double pedunculated flaps.

Sarcoma of Clavicle.—Malignant tumors of the clavicle are comparatively rare, only sixteen cases having occurred in about 275 cases of sarcoma of the long bones observed by Coley. The greatest number belong to the sarcoma group, the few cases of carcinoma being metastatic developments from some recognized or unrecognized primary focus. Sarcoma of the clavicle in the great majority of cases is associated with recent, antecedent, local trauma, either in the form of a direct blow or severe muscular strain. A clinical history of pain and localized swelling of the clavicle usually following recent injury, with rapid increase in size, supplemented by a fairly characteristic roentgen-ray picture, will usually make an early diagnosis comparatively easy without the necessity of an exploratory operation. Local removal of the tumor or even a limited, partial resection should be avoided. The treatment of choice, while the tumor is in an operable stage, should be total excision of the clavicle as soon as the diagnosis is made and as soon as possible after operation, a course of systemic treatment with the mixed toxins of erysipelas and bacillus prodigiosus should be begun and continued for a period of at least six months. When possible this should be supplemented with local or regional treatment with radium or roentgen ray.

Archives of Internal Medicine, Chicago

Aug. 15, 1920, **26**, No. 2

Body Weight in Two Hundred and Twenty-Nine Adults. H. Gray, Boston, and J. F. Mayall, Oxford, Mass.—p. 133.
*Bundle Branch Block and Arborization Block. F. N. Wilson and G. R. Herrmann, St. Louis.—p. 153.
*Case Exhibiting Slow Auriculoventricular Rhythm and Paroxysmal Tachycardia with Unusual Ability to Interrupt the Fast Rate. M. H. Fussell and C. C. Wolferth, Philadelphia.—p. 192.
*Experimental Observations on Atypical QRS Waves of Electrocardiogram of Dog. F. M. Smith, Chicago.—p. 205.
*Gastric Polyposis (Papillomatosis); Report of Case with Operation and Presumable Cure. E. S. DuBray, San Francisco.—p. 221.
*Clinical and Electrocardiographic Observations on Inversion and Other Anomalies of P Wave. W. W. Hamburger, Chicago.—p. 232.
*Electrocardiographic Sign of Coronary Artery Obstruction. H. E. B. Pardee, New York.—p. 244.

Changes Produced by Complete Bundle Branch Block.—That complete bundle branch block produces characteristic changes in the form of the ventricular complex both in animals and in man is the claim made by Wilson and Herrmann. Delayed conduction of the impulse through the branches of the His bundle (incomplete bundle branch block) produces ventricular complexes which are transitional in form between the normal ventricular complex and complexes characteristic of complete bundle branch block. The T deflection is produced by the deactivation of the ventricular muscle. In Lead II of the dog the upstroke of T in right bundle branch block is mainly a left ventricular effect; the downstroke of T in left bundle branch block is mainly a right ventricular effect. There is little experimental evidence to indicate that lesions of the subdivisions of the branches of the His bundle or their arborizations produce those changes in the form of the ventricular complex usually attributed to arborization block. Until such evidence is brought forward the diagnosis of arborization block rests on an insecure foundation.

Paroxysmal Tachycardia of Auricular Origin.—A case is reported by Fussell and Wolferth with a history of attacks of paroxysmal tachycardia occurring over a period of more than forty years; an ability to interrupt the fast rate with temporary cessation of cardiac activity; periods of slow rhythm with interspersed short runs of about the normal rate; abundant clinical evidences of myocardial disease and decompensation. The electrocardiographic tracings showed left ventricular preponderance, depressed conductivity, periods of sinus rhythm alternating with auriculoventricular rhythm, and paroxsmal auricular tachycardia. Observations were made in respect of the alternations of the pacemaker between the sinus and auriculoventricular nodes, variations in rate, relations of auricular systole to ventricular systole. The significance of these phenomena is discussed. The parovysmal tachycardia was determined as auricular in origin by analysis of curves of offset and onset. The method by which the patient obtained interruption of the tachycardia is described, and an attempt made to evaluate the factors responsible for the behavior of the heart during the period of interruption.

Atypical QRS Waves.—The experiments reported on by Smith would seem to indicate that there are at least two factors necessary for the production of the abnormal electrocardiogram under consideration, lesions of the conduction system and cardiac fatigue.

Polyp of Stomach.—A case of gastric polyposis of the papillomatous type is reported by Du Bray in which the clinical and roentgen-ray diagnosis was carcinoma of the stomach. Exploratory laparotomy revealed a broad based benign tumor situated in the greater curvature of the stomach; this tumor was excised and following this the patient has had an uneventful convalescence and six months later has had no recurrence of his former symptoms.

Inversion of P Wave.—Eighteen cases of inversion of the P wave (migration of the pacemaker) are reported by Hamburger; twelve cases with normal rhythm, six cases with arrhythmia (auricular extrasystoles). Inversion of P wave is most frequent in Lead III; five cases showed inversion in Leads II and III; one case in Leads I, II and III; five cases showed a diphasic P; four cases showed a bifurcated P. Analysis of these cases shows that the majority of the patients suffer with varying degrees of myocardial insufficiency and have associated acute or chronic infectious processes. In addition, evidence of vagal influence if frequent, as shown by disturbances in respiration, effect of atropin, occurrence in vagotonic persons, etc. Hamburger suggests that inversion of P wave with auricular extra systoles should probably be interpreted as evidence of auricular pathology; without extra systoles, is probably due to variations in vagus control, and

that electrocardiographic study of cases showing inverted P, or of cases occurring in suspect vagotonic individuals should include the effect of (*a*) deep breathing, (*b*) change of posture, (*c*) atropin and (*d*) the effort test.

Electrocardiograph Sign of Coronary Artery Obstruction.—A case of obstruction of a branch of coronary artery is reported by Pardee in which he detected an electrocardiographic sign which he believes is characteristic of this condition and is readily recognizable in the human electrocardiogram. The characteristic changes appearing a day or two after the obstruction were as follows: The Q R S group is usually notched in at least two leads, and usually shows left ventricular predominance. The T wave does not start from the zero level of the record in either Lead I or Lead III though, perhaps, from a level not far removed from it, and in this lead quickly turns away from its starting point in a sharp curve, without the short straight stretch which is so evident in normal records preceding the peak of the T wave. The T wave is usually of larger size than customary and accordingly shows a somewhat sharper peak. The T wave is usually turned downward in Lead II in one other lead. Not all of these changes are to be found in every record, but enough of them are present to give it a characteristic appearance. It is concluded that this electrocardiographic sign indicates the presence of a rather large area of muscle degeneration, and when it is obtained from a patient who gives a history of precordial pain coming either in attacks or on exertion, that it will complete the diagnosis of obstruction of a branch of a coronary artery. It is suggested that this sign results only from a lesion within the area supplied by the left coronary artery, and that one within the area of the right coronary artery would cause changes so that the record would more or less closely resemble that which follows a lesion of the right branch of the auriculoventricular bundle.

Boston Medical and Surgical Journal

Aug. 26, 1920, **183**, No. 9

*Phenolsulphonephthalein Test and Nonprotein Nitrogen of Blood in Chronic Nephritis. R. Fitz, Boston.—p. 247.
*Chronic Intestinal Indigestion in Children Over One Year Old.—P. Sylvester, Boston.—p. 254.
Case of Dislocation of Carpal Scaphoid. W. P. Coues, Boston.—p. 260.
Uncomplicated Fracture of Zygomatic Arch; Report of Two Cases. F. W. O'Brien, Boston.—p. 262.
Tooth Brush as Cause of Repeated Infections of Mouth. C. M. Cobb, Lynn, Mass.—p. 263.
Practical Mouth Hygiene. A. C. Jacobson, Brooklyn.—p. 264.

Chronic Nephritis.—Chronic nephritis was found in ninety necropsies performed during a period of five years in the Massachusetts General Hospital. All but seven of these cases Fitz says pathologically were of chronic glomerulonephritis or of arteriosclerotic nephritis. The remaining were cases of a mixture of these two types of nephritis or were of various atypical and obscure forms which are so rare as to be negligible. The essential lesions in the two common types of disease were found in the glomeruli or in the smaller renal vessels. Both types showed such characteristic gross and microscopic appearances that an anatomical distinction was made in all cases, except the few in which one of these types of nephritis was superimposed on the other. The records of fifteen cases of chronic glomerulonephritis and of twenty-six cases of arteriosclerotic nephritis which had been studied during life by one or more phenolsulphonephthalein tests and blood nitrogen determinations were selected from this material by Fitz for closer analysis. The records of these cases did not suggest any definite relationship between the type of nephritis found at autopsy and the results of these two tests for kidney function made during life nor did they show any close relationship between the amount of gross anatomical destruction of the kidney and the apparent degree of impairment of renal function. The findings in these cases are presented in full.

Chronic Intestinal Indigestion in Children.—Inasmuch as clinical experience and opinions crystallized from the study of many cases of chronic intestinal indigestion have shown that seldom is more than one component of the food primarily at fault, Sylvester considers each component separately, and speaks of "fat indigestion," "carbohydrate indigestion," and "protein indigestion." Treatment is said to consist in finding and giving the largest amounts of the most digestible foods which can be tolerated by the patient. This means a careful study of the energy, and growth-needs of the child, correlated with frequent examinations of the stools to prevent giving excess, and in bringing into play all the factors of treatment used in the previously described types of indigestion. Sylvester states that there is nothing more fascinating than to watch starch fade to sugar, and meat disappear, under the action of these digestants in a test tube. There is nothing more disappointing than to see the same old food particles appear in the stools, and the same old symptoms continue after giving children ounces of these digesting substances, even though they are chemically treated so as to be protected from the stomach juices. There is no such high road to success. Each case must be individualized.

Canadian Medical Association Journal, Toronto

August, 1920, **10**, No. 8

*Study of Epidemic Encephalitis Based on Seventeen Cases with Two Necropsies. C. K. Russel, Vancouver, B. C.—p. 696.
Recent Advances in Tendon Transplantation and Bone Grafting. W. G. Turner, Montreal.—p. 705.
*Colostomy; Simple and Inexpensive Contrivance to Maintain Perfect Cleanliness. A. MacKinnon, Guelph, Ont.—p. 710.
Functioning of Heart in Cardiac Disease. J. A. Oille, Toronto.—p. 712.
Kala Azar. P. C. Leslie, Changteho, China.—p. 724.
Anti-Tuberculosis Campaign: Rôle of Government and of Private Effort. E. Grenier, Montreal.
Shock. J. W. Richardson, Calgary, Alberta.—p. 733.
Physical Examination of Chest. D. A. Craig, London, Ont.—p. 737.
Water Supplies in Quebec. T. J. Lafreniere, Montreal.—p. 743.
Taking and Examination of Throat Cultures. A. H. MacCordick.—p. 747.
Bichlorid of Mercury Poisoning by Vaginal Application. E. V. Frederick, Peterborough, Ont.—p. 751.

Cause of Somnolence in Epidemic Encephalitis.—Russel suggests that the somnolence so characteristic of this disease depends entirely on the site of the lesion in the posterior part of the pons near the aqueduct of Sylvius, or, in other words, where the flow of the cerebral fluid from its origin in the cerebral hemisphere to the spinal canal could easily be interfered with by a small amount of swelling closing off the canal of the aqueduct, for instance, or, in the extreme lower end of the fourth ventricle, blocking of the foramen of Magendie with a relative damming back of the fluid and the formation of an acute hydrocephalus.

Colostomy: Modified Technic.—Maydl's operation, in which a glass or hard rubber rod is thrust through a slit in the mysentery to maintain the bowel well out of the wound is the one selected by MacKinnon. The bowel should be divided freely, transversely down to the posterior wall, but no bowel should be trimmed away. There will then be quite a mass of bowel external to the wall of the body. This mass will be smaller around the margins of the healed incision, presenting a neck. Over this neck is fitted a receptacle for gas or feces, liquid or solid, so that the patient can be kept absolutely clean. It is made of thin rubber, almost as thin as toy balloons. The neck of the balloon is made to hug the neck of the bowel closely enough that no leakage will occur around it. The bowel contents are discharged into the receptacle without touching the surface of the skin. A gauze pad above and below and a suitable bandage complete the necessary equipment.

Medical Record, New York

Aug. 21, 1920, **98**, No. 8

Motility. E. H. P. Ward, White Plains, N. Y.—p. 295.
Defense Mechanisms. H. Laveson, New York.—p. 302.
Industrial Injuries and First Aid. A. C. Burnham, New York.—p. 307.
*Immunity to Tuberculosis Among Workers in Sulphur Dioxid. F. Tweddell, Great Neck, N. Y.—p. 310.
Diagnosis of Cancer of Rectum. C. J. Drueck, Chicago.—p. 312.
Quinin in Treatment of Hemoptysis. J. E. Strobel, Hartford, Conn.—p. 313.

Does Sulphur Dioxid Produce Immunity to Tuberculosis?—Of thirty-eight manufacturers of sulphur dioxid and sulphuric acid, who answered a circular sent out by Tweddell, thirty-one never had a case of tuberculosis among their men. Nine companies omitted to mention the number of men employed, but gave data in regard to tuberculosis. The remaining twenty-nine companies employed 11,085 men, of whom 7,707

men were habitually exposed to sulphur dioxid or sulphuric acid, and 3,378 men were not constantly exposed. Only twenty-two cases of tuberculosis were noted during the entire period of existence of all these thirty-eight concerns. Omitting seven men who were tuberculous before employment, two suspected cases, and five cases following epidemic influenza, only eight cases remained to be accounted for. Tweddell is of the opinion that sulphur dioxid is instrumental in producing an immunity to tuberculosis.

Aug. 28, 1920, **98**, No. 9

Descriptive Psychology and Medicine. C. L. Dana, New York.—p. 337.
Parallel Between Dreams and Psychoses. G. P. Boulden, Dongan Hills, Staten Island, N. Y.—p. 341.
Practical Methods of Heart Study and Their Relative Values. W. D. Alsever, Syracuse, N. Y.—p. 345.
Duodenal Ulcer. Its Early Diagnosis and Treatment. N. H. Hornstine, Philadelphia.—p. 348.
Biddy and Coal Bin. A Case of Polyglandular Disease. R. L. Pitfield, Philadelphia.—p. 351.
Errors in Diagnosis of Contagious Diseases. A. I. Blau, New York. —p. 352.
Treatment of Cancer. R. Bell, London.—p. 354.
Roentgen Ray Treatment of Universal Psoriasis. J. Remer and W. D. Witherbee, New York.—p. 355.

Mental Hygiene, Albany, N. Y.

July, 1920, **4**, No. 3

Minimum of Medical Insight Required by Social Workers with Delinquents. C. M. Campbell, Baltimore.—p. 513.
Individual Variations in Mental Equipment. A. F. Bronner, Boston. —p. 521.
Problems of Social Case Work with Children. J. Taft, Philadelphia. —p. 537.
Modern Specialist in Unrest: Place for Psychiatrist in Industry. E. E. Southard, Boston.—p. 550.
Mental Deficiency in United States as Determined by Examination of Recruits. P. Bailey and Roy Haber, Washington, D. C.—p. 564.
Clinics for Mental Defectives in State of New York. W. C. Sandy, New York.—p. 597.
After-Care for Narcotic-Drug Addict. S. Graham-Mulhall, New York. —p. 605.
Disciplinary Measures in Management of Psychopathic Delinquent Woman. J. D. Hodder, Farmingham, Mass.—p. 611.
State Institutions for Feebleminded. V. V. Anderson.—p. 626.
State Hospital and Parole System. E. S. Elwood, New York.—p. 647.
Influence of War upon Concepts of Mental Diseases and Neuroses. S. I. Schwab, St. Louis.—p. 654.
Relation of General Practitioner to Neurotic Patient. A. Polon, New York.—p. 670.

New York Medical Journal

Aug. 28, 1920, **112**, No. 9

*Use of Benzyl Benzoate in Some Circulatory Conditions. D. I. Macht, Baltimore.—p. 269.
New Therapy in Light of New Physiology. J. J. McNulty, New York. —p. 271.
Early Signs of Tabes. B. P. Thom, New York.—p. 273.
*Administration of Arsphenamin by Rectum in Form of Enteroclysis. V. W. M. Wright, Philadelphia.—p. 275.
Seven Generations of Physicians. G. S. Bangert, East Orange, N. J. —p. 277.
Schick Test, Its Control, and Active Immunization Against Diphtheria. A. I. Blau, New York.—p. 279.
Nephritis. H. I. Goldstein, Camden, N. J.—p. 283.

Benzyl Benzoate in Hypertension.—Benzyl benzoate has been shown to be a powerful vasodilator, without being depressant to the heart when administered by mouth in small doses. Owing to this property Macht found it to be effective in the treatment of hypertension and angina pectoris. The best method of administering the drug in such cases is in alcoholic solution, which admits of rapid absorption and a control of the dose. A 20 per cent. alcoholic solution of benzyl benzoate was administered by mouth, either in cold water or milk. The ordinary dose was found to be 20 or 30 drops of such a solution, taken three or four times a day. After administering to a patient full doses of benzyl benzoate and obtaining a desirable therapeutic effect, the reduced pressure could be maintained by keeping a patient on very small doses of the drug, sometimes no more than 5 minims of the 20 per cent. solution. The effect of benzyl benzoate on the blood pressure was demonstrable even in such cases in which nitrites failed to produce a vasodilatation.

Arsphenamin Administered by Rectum.—It is thought by Wright that by this method the solution is picked up by the blood vessels and lymphatics of the rectum and sigmoid and the greater proportion of the solution conveyed directly to the liver whence it is meted out, and that much more arsphenamin enters the liver and is stored there by this method than by the intravenous method. The details of the technic are described fully.

Philippine Journal of Science, Manila

March, 1920, **16**, No. 3

Philippine Amphibia. E. H. Taylor.—p. 213.

Southern Medical Journal, Birmingham, Ala.

August, 1920, **13**, No. 8

*Bright's Disease with Special Reference to Treatment. H. A. Christian, Boston.—p. 545.
*Signs and Symptoms of Hypopituitarism. S. R. Roberts, Atlanta, Ga. —p. 549.
Treatment of Visceroptosis. F. W. Wilkerson, Montgomery, Ala.—p. 553.
*Comparative Study of Gastric Motility as Determined by Ordinary Test Meal and Six-Hour Barium Retention. H. G. Beck and J. Evans, Baltimore.—p. 559.
Present Limitations of Roentgen Ray in Diagnosis of Gastro-Intestinal Diseases. G. M. Niles, Atlanta, Ga.—p. 564.
Intestinal Protozoa: Diagnosis and Treatment. S. K. Simon, New Orleans.—p. 569.
Tuberculosis Infection and Tuberculosis. B. L. Taliaferro, Catawba Sanatorium, Va.—p. 574.
Malaria Problem of Rice Field of United States. J. C. Geiger and W. C. Purdy, Washington, D. C.—p. 577.
Ununited Fractures of Neck of Femur. W. Campbell, Memphis, Tenn. —p. 585.
Aneurysms. E. B. Anderson, Chattanooga, Tenn.—p. 589.
Ovarian Function Following Hysterectomy. E. H. Richardson, Baltimore.—p. 595.
Diverticulum of Posterior Urethra. G. T. Tyler, Greenville, S. C.— p. 599.
Common Skin Lesions Rarely Recognized. C. A. Simpson, Washington, D. C.—p. 601.
Relation of Fifth Cranial Nerve to Auditory-Vestibular Disease. E. R. Carpenter, Dallas, Tex.—p. 605.
Medical Teacher. K. M. Lynch, Charleston, S. C.—p. 607.

Treatment of Chronic Nephritis.—Much of the management of the chronic nephritis hinges on the theory of physiologic rest for the injured or overworked kidney. To bring about physiologic rest Christian selects a diet poor in protein as contrasted to the average normal diet and poor in sodium chlorid. Protein calories are replaced by carbohydrate and to a less extent by fats. Fluid intake is set at a level of about 1,500 c.c. per twenty-four hours. The exact degree of reduction in protein, salt and fluid should vary with the degree of the nephritic process. Catharsis to give free, not loose, movements are needed for the average nephritic. Diuretics seem to have little place in the treatment. Hypertension requires no particular therapeusus other than the diet, baths, catharsis, etc., already described. Edema in certain types of nephritis is very annoying. Reduction in fluid intake and restriction of protein and especially of salt in the diet is indicated. The high protein diet advised by Epstein for edematous nephritics, in Christian's experience, has not given good results. Similarly the alkaline treatment of Fischer has been disappointing. Continued catharsis sometimes helps. When edema is marked, mechanical removal gives prompt, but, as a rule, only temporary relief. With a normal heart and edema from renal insufficiency, Christian has never seen diuresis from digitalis, and rarely from diuretic drugs.

Symptoms of Hypopituitarism.—Undergrowth, dwarfism, dysgenitalism, feminine hirsuties, feminine type skeleton, lack of secondary sexual characteristics, genital atrophy and impotence, headaches, languor, weakness, Roberts says, may appear in varying degrees in different cases at different periods. The classic signs and symptoms of hypopituitarism are subnormal temperature, dry skin, adiposity, low blood pressure, slow pulse, constipation, amenorrhea, drowsiness, inactivity. Lack of attention, impairment of memory, actual dulness, mild psychoses to actual convulsive seizures with epileptic attacks may occur. The cause may be glandular deficiency of one or both lobes, a pituitary tumor with damage of the gland, a neighborhood tumor or hydrocephalus with pituitary pressure. The symptoms of intracranial tumor may be more prominent than those of pituitary deficiency. Infantilism, dysgenitalism, obesity, symptoms of intracranial tumor, warrant pituitary study.

Diagnosis of Gastric Motility.—According to Beck and Evans there is very little evidence to show that the secretory function has any influence on the motor function in pathologic conditions affecting the stomach and duodenum.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

July, 1920, No. 240

Effective Resistance of Human Body to High-Frequency Currents. C. M. Dowse and C. E. Iredell.—p. 33.
Use of Radium in Malignant Disease. T. H. Kellock.—p. 46.
Case of Broncho-Esophageal Fistula. W. Mitchell.—p. 49.

British Journal of Children's Diseases, London

April-June, 1920, **17**, Nos. 196-198

Stigmata of Predisposition to Bone and Joint Tubercle. W. C. Rivers.—p. 59.
Traumatic Stricture of Urethra in Children and Young Subjects; Immediate Treatment of Ruptured Urethra. A. R. Thompson.—p. 70.
Two Cases of Unilateral Macrosomia and Congenital Overgrowth of Right Leg. J. Black-Milne.—p. 79.
Unilateral Dwarfism of Limbs Connected with Congenital Multiple Chondroma. F. P. Weber.—p. 85.

British Journal of Experimental Pathology, London

June, 1920, **1**, No. 3

*Antigenic Properties of Bacillus Psittacosis. H. M. Perry.—p. 131.
*Method for Estimation of Urea by Soy Bean. E. L. Kennaway.—p. 135.
*Value of Vital Red Method as Clinical Means for Estimation of Volume of Blood. D. T. Harris.—p. 142.
*Etiology of Influenza. P. Fildes and J. McIntosh.—p. 159.

Bacillus Psittacosis.—A strain of *B. psittacosis* was isolated by Perry from an infective disease in parrots. This strain was shown to have identical serologic relationships to *B. aertrycke* ("mutton" type) and to the original culture of *B. psittacosis* made by Nocard in 1893.

Estimation of Urea by Soy Bean.—A technic for the estimation of urea by soy bean is described by Kennaway by which amounts of 1 mg. can be estimated with an accuracy of 97 per cent. The ammonia produced is not removed by an air-current and is titrated by means of a comparator. In the case of serum an alcoholic preparation is used without evaporation.

Determination of Blood Volume.—A control method is described by Harris for the determination of the blood volume in animals which depends on removing the maximum of hemoglobin compatible with life while keeping the blood volume constant by the simultaneous injection of gum-saline solution at the same rate.

Etiology of Influenza.—The evidence for and against the suggestion that influenza is due to filter passers is reviewed by Fildes and McIntosh. The conclusion is unfavorable to filter passers on the grounds that few of the necessary criteria are fulfilled. The incidence of the influenza bacillus in influenza and other conditions, and its pathogenic action on man and animals is discussed. The review is favorable to *B. influenzae* as the cause of influenza.

British Medical Journal, London

August 14, 1920, No. 3111

Obstetric and Gynecologic Education. H. Briggs.—p. 229.
Problems of Filariasis. J. W. W. Stephens and W. Yorke.—p. 231.
Filaria Bancrofti in Production of Elephantiasis and Kindred Diseases. G. C. Low.—p. 233.
*Treatment of Human Trypanosomiasis and Kala-Azar by Acetyl-P-Aminophenyl Stibiate of Sodium. P. Manson-Bahr.—p. 235.
*Dietetic Deficiency and Endocrine Activity with Special Reference to Deficiency Edemas. R. McCarrison.—p. 236.
Treatment of Denervated Muscle; "Disuse" Theory. J. N. Langley.—p. 239.
Rupture of Vein of Dermoid Cyst. J. O. Beven.—p. 243.
Ligature of First Part of Right Subclavian Artery for Traumatic Aneurysm of Second and Third Parts. D. W. Hume.—p. 243.

Treatment of Trypanosomiasis and Kala-Azar by Stibiate of Sodium Compound.—Bahr has treated two cases, apparently with success, with this drug, and the results have been so striking that in his opinion this early publication is justified. He began with 0.1 gm. working up to 0.3 gm. Injections were given as far as possible on alternate days. Improvement has been progressive, no untoward symptoms following injection have been noted.

Edema and Enlarged Suprarenals.—McCarrison found that edema is invariably associated with massive enlargement of the suprarenal glands in pigeons fed on autoclaved rice. But massive enlargement of the suprarenals is not invariably associated with edema. This association bears some intimate relationship to the epinephrin content of the enlarged organs: when the content is high edema occurs in 86 per cent. of cases, when the content is low edema does not occur. Fresh butter contains some substance which tends to protect against edema. This substance was not present in a cocoanut oil. The hypothetical "anti-edema" substance in butter has a pronounced influence over the suprarenals. It appears to exert its protective action against edema by maintaining their epinephrin content at a low level. Butter varies in its capacity to protect against edema. This variation is dependent on the quality of the cow's food: butter is richer in "anti-edema" substance when the cows are fed on green fodder than when they are fed on dry fodder.

Dublin Journal of Medical Science

August, 1920, **4**, No. 6

Clinical Symptoms of Appendicitis Compared with Lesions Found at Operation. C. B. Maunsell.—p. 265.
Case of Solitary Cyst of Kidney. A. A. McConnell.—p. 270.
Acute Pneumococcal Lobar Pneumonia. H. F. Moore.—p. 274.

Edinburgh Medical Journal

August, 1920, **25**, No. 2

Functional Mental Illnesses. R. G. Rows.—p. 76.
Influenzal Pneumonia; Its Treatment. K. Petren.—p. 92.
Resection of Colon by Paul's Three-Stage Method. W. Q. Wood.—p. 106.
Artificial Pneumothorax in Pulmonary Tuberculosis. J. Crockett.—p. 113.
Intraocular Pressure. E. H. Cameron.—p. 130.

Lancet, London

August 14, 1920, **2**, No. 7

*Croonian Lectures on Psychology of Special Senses and Their Functional Disorders. A. F. Hurst.—p. 333.
*Causal Organism of Influenza. J. W. Edington.—p. 340.
Treatment of Chronic Otorrhea by Zinc Ionization. A. R. Friel.—p. 345.
*Treatment of Gonorrhea with Detoxicated Vaccine. W. V. Corbett and T. E. Osmond.—p. 346.
Herpes and Chickenpox. C. B. Ker.—p. 347.
Analysis of a Fugue. R. L. Gamlen.—p. 350.
*Case of Myoclonic Form of Acute Epidemic Encephalitis. D. McAlpine.—p. 353.
*New Method in Rhinoplasty. G. Chubb.—p. 354.

Hysterical Fits and Epilepsy.—Hurst believes that hysterical fits are much more common than is generally supposed, and that many such cases are diagnosed as epilepsy and treated for years with bromids. It has been said that a definite aura is uncommon in hysteria, but common before true epileptic fits. This is incorrect Hurst claims. Some kind of warning invariably precedes an hysterical attack. It is indeed this "warning," which acts as the suggestion, which is the exciting cause of each fit. A symptom which has once produced an attack will be likely to produce another whenever it recurs, because it subconsciously reminds the patient of his earlier attack and thus suggests that another will occur.

Bacillus of Influenza Cause of Influenza.—The results of his investigations have convinced Edington that *B. influenzae* (Pfeiffer) was an infecting agent in all the Dover, Canterbury and Schorncliffe cases studied; that it was likely to have been the primary infecting agent, seeing that specific agglutinins and complement fixing bodies were demonstrated in the blood of some cases as early as the third day of the illness. The cultural results, as well as a consideration of the fluctuations of the carrier rate, also favor the statement that *B. influenzae* (Pfeiffer) was the causal organism. In the Hythe cases *B. influenzae* (Pfeiffer) does not seem to have been the causal agent, as has been shown both culturally and serologically. Edington hesitates to accept the gram-negative diplococcus, isolated in all the cases, as the causal agent until the cultural results were supported by some immunity test. The whole work tends to point to the fact that clinical influenza may be due to more than one variety of infecting organism.

Detoxicated Vaccines in Gonorrhea.—The average duration of the disease in test cases studied by Corbett and Osmond was 38.5 days as compared with 48.4 days of controls—a decrease of nearly 10 days per case.

Myoclonic Form of Epidemic Encephalitis.—In McAlpine's case there were inequality of the pupils and the absence of marked dilatation; absence of vomiting, difficulty in urination, disturbance in speech, leukocytosis, and sweating; presence of general hypotonia; trophic changes in the feet and hands. On examining the abdomen in the recumbent position sudden shocklike contractions were seen involving the lower segments, chiefly the left, causing the umbilicus to be pulled downward. The tone of the abdominal muscles was slightly increased. Reflexes were present in lower segments, but absent in the upper. A fine irregular tremor was present in both legs on voluntary movement. The same shocklike contractions were present in certain muscle groups in the legs—especially frequent are those in the peroneal group of the right leg and in the posterior group of the left leg. The contractions were much shorter in duration though just as powerful as those in the abdomen.

Rhinoplasty.—The case described by Chubb was a gunshot injury. The tip of the nose, the anterior part of the septum, and the whole of the columella had disappeared. The nasal bones were, however, intact, and the greater part of both alae were present, lying flat on the face. A transverse tubed pedicle from the left side of the chest, immediately below the breast and a piece of cartilage taken from the junction of the sixth and seventh ribs, shaped to correspond to a plasticine reconstruction of the patient's nose and inserted beneath the skin at one end of the pedicle, were used in the restoration of the nose.

Archives des Maladies du Cœur, etc., Paris

June, 1920, **13**, No. 6

*General or Local Arterial Hypertension. V. Cordier.—p. 241.
False Slow Pulse. M. Parvu.—p. 250.
*Signs of Degeneration and Regeneration of the Blood. J. Rieux.—p. 254.

Acrocyanosis.—Cordier has coined this term to express the localized arterial hypertension sometimes encountered in hands and feet. The acrocyanosis occurs spasmodically, but there is no livid appearance or trophic disturbance. In his twenty-three cases both hands were affected in the majority, but in four cases a single hand, and in one each the foot and hand on the same side or merely the nose and ears. A milk-vegetable diet seemed to be more effectual in arresting the tendency than local or other measures, as the primary cause seems to be some toxic action on the vasomotor centers. He adds, "This acrocyanosis marks the first phase of the evolution of the phenomena which we will be encountering in the next ten years. The generation that ten years from now will be 40 and 50 years old will present pathologic conditions in heart and kidneys for which we can retrospectively incriminate the intoxications, commotions, fatigues and latent infections of the campaign just ended."

Signs of Degeneration and of Regeneration of the Blood.—Rieux gives the "genealogic tree of the blood corpuscles," and explains how to differentiate between the signs which indicate degeneration and those which point to recuperation of the blood-forming apparatus. The latter group includes the normo-megaloblastic reaction, numerous relics of nuclei, and large numbers of basophil granular erythrocytes. These findings demonstrate that the bone marrow is still capable of producing blood corpuscles, and this task may be aided by appropriate treatment. Otherwise there is not much hope from any measures.

Bulletin de l'Académie de Médecine, Paris

July 27, 1920, **84**, No. 29

*Bacillary Diathesis and Histologic Bacillosis. M. Lenoble.—p. 65.
*Lumbar Puncture in Carbon Monoxid Poisoning. Legry and J. Lermoyez.—p. 67.

The Other Organs with Pulmonary Tuberculosis.—Lenoble inoculated guinea-pigs with tissue from the kidneys, liver, spleen and other organs from persons who had pulmonary tuberculosis in an apparently mild form. The results were positive in fifty-seven of the seventy-three tests, confirming the frequent impregnation of remote organs with the bacilli, and of specific phlebitis. This bacillary diathesis, as he calls it, explains the sudden death without an acute terminal syndrome in certain cases of pulmonary tuberculosis.

Lumbar Puncture in Carbon Monoxid Poisoning.—Legry and Lermoyez found almost pure blood in the puncture fluid, and polynucleosis which yielded to lymphocytosis. The man's wife and daughter showed only mild symptoms from the same exposure to the gas. The meninges in his case were evidently less resistant, as he had had epidemic meningitis and had been twice exposed to aerial concussion with unconsciousness each time. This and some other cases of carbon monoxid poisoning suggest the advisability of examining the lumbar puncture fluid for carbon monoxid in dubious cases. Any extravasated blood here is protected against oxygenation and may retrospectively sustain the diagnosis.

Bulletin Médical, Paris

July 24, 1920, **34**, No. 37

*Entero-Antigens in General Practice. J. Danysz.—p. 657.
Carbon Tetrachlorid in Surgery and Dermatology. E. Desesquelle.—p. 658.

Entero-Antigens in Medical Practice.—Danysz here brings down to date his account of his successful treatment of afebrile chronic diseases by means of cultures of nonpathogenic micro-organisms isolated from the intestinal flora and sterilized, with heat, ether or other method. The preparation that has proved most effectual contains two strains of colon bacilli and one each of the proteus, enterococcus, streptococcus and staphylococcus, but these proportions and the amounts differ when used for psoriasis, enteritis or asthma, etc. They are given by subcutaneous injection or by the mouth, and in his several thousands of injections he has never witnessed any dangerous reaction. We know now, he says, that antigens are capable of producing in the organism any of the pathologic manifestations which characterize all the known chronic affections. Also that the cell reactions induced by all the antigens (except the toxins proper) are all of the same nature. Consequently it follows that any and every chronic affection may have for its cause some anaphylactic condition of the organism. This being the case, there is a possibility that any chronic affection may be successfully treated by the so-called anti-anaphylaxis methods, that is, by antigens. Of all the nonspecific antigens used to date in the preventive or curative treatment of anaphylaxis (proteins, peptone, milk, autogenous and heterogenous serums, etc.) the antigens prepared with cultures of micro-organisms from the intestinal flora, the so-called entero-antigens, have displayed the greatest curative efficacy.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 25, 1920, **44**, No. 23

*Blood Pressure in Hemiplegia. C. Mirallié.—p. 889.
*Slow Malignant Endocarditis. P. Lereboullet and J. Mouzon.—p. 894; *Idem. C. Achard and J. Rouillard.—p. 910.
*Obliteration of Aorta. C. Achard, A. Leblanc and J. Rouillard.—p. 903.
Necropsy in Case of Congenital, Familial Ophthalmoplegia. O. Crouzon and others.—p. 915.
*Serotherapy of Gangrene of Lung. F. Rathery and F. Bordet.—p. 916.
*The Bladder Factor in Uremia. H. Dufour and Debray.—p. 920.
Lethargic Encephalitis. F. Widal and others.—pp. 922; 929.
Gaps in Stomach Shadow Independent of Ulcer or Cancer. F. Ramond and J. Serrand.—p. 926.
*Ureosecretory Index in Children. Apert and others.—p. 933.
Maximal Concentration of Urea in Two Children with Orthostatic Albuminuria. Apert and P. Vallery-Radot.—p. 937.
*Autohemotherapy in Angioneurotic Edema. E. Schulmann.—p. 939.
Spirochetal Jaundice in Egypt. A. Valassopoulo.—p. 942.
*Typhus. Glatard.—pp. 944; 948.

Blood Pressure in Hemiplegia.—Mirallié has been recording the blood pressure on both sides in sixteen women and four men with hemiplegia for from seven months to thirty years. The maximal pressure was lower on the paralyzed side, but the minimal was alike on both sides. The edema on the paralyzed side is explained by a latent or imminent edema developing in a region of lesser resistance. The primary cause is to be sought in the heart or kidneys.

Meningitic Form of Slow Endocarditis.—Lereboullet and Mouzon reproduce the necropsy findings in the case reported. During a recurring attack of febrile rheumatism, signs of general infection developed, with symptoms suggesting meningitis, fatal in less than five months. The meningeal symptoms had been misleading, suggesting syphilitic meningitis or acute tuberculosis, but necropsy revealed the slow malignant endocarditis as responsible for the meningeal reaction, showing vegetations in the heart of long standing.

Slow Malignant Endocarditis.—Achard and Rouillard report a typical case and another with certain unusual features. In this the first symptoms had been those from an infarct in the lung with pleural effusion, but they soon subsided. This occurred abou a month after delivery of a healthy child. Six weeks after apparent recovery, symptoms of general infection developed, and the woman died in less than five months. A staphylococcus was cultivated from the blood on two occasions; two other attempts gave negative findings, but this is not surprising as the special streptococcus of slow malignant endocarditis is difficult to find and to cultivate.

Obliteration of the Aorta.—Achard reports three cases of obliteration of the thoracic or abdominal aorta from embolism or thrombosis. The gravity of the prognosis with obliteration of the aorta commands operative intervention at once, but these cases were seen too late for operative relief.

Recovery Under Serotherapy of Gangrene of Lung.—Rathery and Bordet injected a polyvalent antigangrene serum in a man of 61 with a gangrenous process in the left lung, utilizing the intratracheal, intravenous and intramuscular routes, supplemented with antistreptococcus serotherapy. When the gangrenous process had entered the subacute phase, the intratracheal medication could be pushed; before that it had induced dyspnea.

Uremia from Retention in Bladder.—The outlook in cases of uremia from mere retention of urine in the bladder is naturally favorable if the bladder functioning can be restored. In the case of sclerosis in patches reported, the nitrogen content of the blood was 4 per cent. but as the urine was drawn twice a day, this dropped to 2 per cent. in a week. One day when the urine had not been drawn for twenty-five hours, the uremia rose the next day to 3 per cent. In tabes, hysteria and other affections accompanied with retention in the bladder, a kidney lesion need not necessarily be assumed on account of the discovery of uremia.

Ureosecretory Index in Children.—Apert and his co-workers report experiences which testify that the Ambard constant is applicable to children, as well as to adults, if the weight is taken into account. It shows that the essential characteristics of the kidney are the same in children and in adults. Their average from fifty child cadavers is tabulated for each year of age. The Ambard formula should be corrected by multiplying by 1.29 for a child from 1 month to 10 years old. The ratio between the total weight and the weight of both kidneys averages 9.45 instead of the 5.60 of the adult. Hence the $\frac{70}{P}$ of the adult should be $\frac{70}{P} \times \frac{5.60}{9.45}$ which equals $\frac{70}{P} \times 0.60$, and $\frac{\sqrt{70}}{\sqrt{42}} = 1.29$.

Autohemotherapy of Angioneurotic Edema.—Schulmann relates that discovery of a transient phase of hemolysis, the *crise hémoclasique*, in a number of cases of Quincke's disease has confirmed its analogy with other affections in which anaphylaxis is a factor, and treatment on this assumption is proving successful. He applies it in the form of autohemotherapy, drawing 2 c.c. of blood into a syringe from a vein at the bend of the elbow, and he reinjects the blood into the neighboring subcutaneous tissue, merely drawing the needle out of the vein and pointing the tip in another direction in the tissues of the arm. He has made hundreds of these injections and never had a mishap, but the desensitization may take up to two months, although there is relief almost from the first. Three typical cases are described; one woman of 31 had been subject to attacks of angioneurotic edema since before puberty, returning at different points and lately becoming more frequent and lasting for three or four days. She was given three injections a week and by the end of the third month the tendency seemed to have been arrested. She returns every three or four months to have a few injections of the kind made. In another case the attacks had been recurring every two or three days during the six months following a childbirth, and they were accompanied with headache and urticaria. There has been no recurrence during the year since the course of thirty-five injections.

Typhus.—Glatard has been through a recent epidemic of typhus at Oran. The death rate was 22 per cent. in his 206 cases. He emphasizes that congestion of the conjunctivae is a constant and very early symptom of the disease. The eruption was rarely petechial, and could not be blanched by pressure. The disease seems to strike the myocardium and the nervous system above all, which explains the collapse and the meningeal reactions even into convalescence. He gave hexamethylenamin by the vein in 114 cases, a total of 333 injections, and the mortality in this group was only 14 per cent. instead of the 29 per cent. in those not given this treatment. It accelerates defervescence and increases the diuresis, but it is futile to give it after defervescence. The weakness of the heart at this stage is best combated with camphor, strychnin or sodium nucleinate.

Journal de Chirurgie, Paris

1920, **16**, No. 3

*Arteriovenous Anastomosis for Gangrene. M. Roussiel.—p. 257.
*Torsion Arthrodesis for Drop-Foot, etc. R. Toupet.—p. 268.
Hydatid Cysts in Brain. P. Lombard.—p. 278.

Arteriovenous Anastomosis for Gangrene.—Roussiel has sutured the artery to the vein in three cases and has compiled a total of sixty from the literature. In the fifty-two cases in which the gangrene was fully established, the outcome was favorable in only a very few instances, but in the eleven cases with only incipient gangrene, the operation was a complete success in five, that is, in nearly 50 per cent. He urges practitioners to call in the surgeon on menace of gangrene, without waiting until it is firmly established, and describes the technic with illustrations, summarizing the cases with favorable outcome. The operation should not be attempted in the aged, nor with infection of the necrosed tissues, nor with thrombosis in both femoral artery and vein and in the internal saphenous vein.

Arthrodesis for Drop-Foot.—Toupet gives the minute details of his method of driving an autogenous bone peg slanting through the astragalus down into the tuberosity of the fifth metatarsal bone, which serves as a kind of abutment. The tunnel bored for the peg starts a little inside the median line in the astragalus.

Lyon Médical

July 25, 1920, **129**, No. 14

Automatism of the Heart. J. Mollard.—p. 605.

Presse Médicale, Paris

Aug. 4, 1920, **28**, No. 54

Comparative Merits of Arsphenamin and Mercury. R. Sabouraud.—p. 533.
Chronic Intestinal Stasis. A. Hadgès.—p. 534.

Revue de Chirurgie, Paris

1920, **39**, No. 4

*Wounds of the Heart with Tardy Symptoms. P. Mocquot and H. Costantini.—p. 257.
*Intravenous Injections of Blood, Plasma or Gum Solution. M. Barthélemy.—p. 271.
Primary Sarcoma of Rectum. N. C. Lapeyre.—p. 281. Cont'n.
*Traumatic Drop in Blood Pressure. E. Quénu.—p. 304.

Wounds of the Heart.—Mocquot and Costantini refer in particular to a secondary hemopericardium which does not become apparent until some time after the injury of the heart. They describe eleven cases, and specify that it is always the region of the ventricles which is the seat of the wound in these cases, the walls being so thick that the clot may plug the hole and heal spontaneously. If the clot becomes dislodged, hemorrhage occurs after a shorter or longer symptomless period.

Transfusion of Blood, Serum or Gum Solution.—Barthélemy summarizes the results of his experimental and clinical experience in the statement that transfusion of whole blood may be required when the corpuscles are suffering, and also in infectious diseases, but transfusion of the serum alone seems better adapted for certain infectious conditions when the shock therefrom is liable to prove of advantage. But intravenous injection of a gum-saline solution is directly indicated in all cases in which the blood pressure has to be raised and sustained, as also in all cases of acute anemia and traumatic shock. He says that to prepare the gum saline, commercial gum acacia is preferable as it contains small amounts of calcium and potassium. By weight, 60 gm. are melted in the water bath in a 9 per thousand solution of sodium chlorid and enough of the latter added to make 1 liter, and the whole is sterilized in the incubator. This fluid does not modify the blood corpuscles, nor induce any reaction to alien albumin as it does not contain any protein, and it has the enormous advantage that it can always be prepared in advance. His dogs exsanguinated until they had lost from 60 to 72 per cent. of their blood, were recalled to life by injection of this fluid by the vein, although artificial respiration had to be kept up for from ten to twenty minutes before the heart began to beat again. It had a similar effect in a man with acute anemia from wounds in both femoral arteries. He was kept alive with ordinary solution of sodium chlorid while the gum solution was being prepared.

Traumatic Drop in Blood Pressure.—Quénu enumerates the dire results liable to be entailed by the lowering of the blood pressure, inducing secondary disturbances to aggravate the condition still further, adding that the various measures that have been applied act on the symptoms but often do not attack the cause promptly enough, the sources of the toxic action. The factor, intoxication, predominates over all the others, and unless this can be suppressed, transfusion and gum solution, etc., are powerless.

Revue Neurologique, Paris

March, 1920, **27**, No. 3

*Sympathetic Disturbances in Arms with Low Spinal Cord Disease. J. A. Barré and R. Schrapf.—p. 225.
*Palm-Chin Reflex. G. Marinesco and A. Radovici.—p. 237.
Isolated Neuritis of Motor Branch of Trigeminal. K. H. Krabbe.—p. 241.
*Rare Localization of Tetany in Adult. V. Cordier and A. Gonnet.—p. 244.
Simulation of Insanity Revealed by Photographs. E. Gelma.—p. 251.

Nervous Disturbances in Arms with Low Spinal Cord Lesions.—Barré warns that sensory, motor and vasomotor symptoms in the arms frequently accompany injury of the middle or inferior portions of the cord, and explains the mechanism.

The Palm-Chin Reflex.—Marinesco and Radovici describe what they call a new skin reflex, a slow and lasting contraction of the muscles of the chin on the side on which irritation is applied to the palm with a pin, or simply stroking the thenar region.

Tetany in One Leg.—Cordier and Gonnet present arguments to prove the correctness of their diagnosis of tetany in the case described in a man of 67. The transient attacks of painful contraction in the left leg had recurred at times during five years. Before this there had been similar attacks in the fingers.

Schweizerische medizinische Wochenschrift, Basel

May 20, 1920, **50**, No. 21

*Adaptation of Free Flagellate to Parasitism. B. Galli-Valerio.—p. 401.
*Trauma of Lower End of Femur. R. Schweizer.—p. 402.

Cycle of Evolution of the Herpetomonas Pyrrhocoris.—Galli-Valerio relates that he has traced the cycle of development and transformation of a flagellate from a plant in and through a certain insect. He found that the bacteria from insects seemed to be more pathogenic for cold-blooded vertebrates than for the warm blooded, and adds that Metalnikoff has recently reported that the caterpillars of *Galleria melonella* are extremely resistant to the most dangerous pathogenic bacteria from the higher animals, while they are susceptible to saprophytes.

Injury of the Lower End of the Femur.—Schweizer refers to the small roentgen shadows often seen in the lower end of the femur after injury of the knee, and explains how they may be traced to a number of conditions, but none serious. Under brief repose, moist heat, massage, superheated air, and exercise, normal conditions are usually soon restored.

June 3, 1920, **50**, No. 23

Appendicitis, Season and Weather. J. Dubs.—p. 441.
Lethargic Encephalitis. T. Tobler.—p. 446. Conc'n in No. 24.
Hops in Therapeutics. F. Krapf.—p. 453.

July 15, 1920, **50**, No. 29

Illumination for Ophthalmologic Examination. A. Vogt.—p. 613.
*Placenta Praevia. A. Wächter.—p. 618.
*Venereal Patients' Disregard of Directions. G. Peter.—p. 623.

Placenta Praevia.—Wächter states that at the Zurich maternity there was one case of placenta praevia to 107 childbirths 1888-1907; since then 1 to 125, and during the war years, 1 to 238, a total of 300 cases. The maternal mortality has dropped from 7.6 per cent. to 3 while the mortality of the children was 74.8 per cent. He analyzes the outcome with the fourteen different measures applied in different cases.

Venereal Disease.—Peter has been following up 1,000 patients who had been under treatment for venereal disease at the free dispensaries, and draws a gloomy picture of the heedlessness and lack of perseverance of the overwhelming majority, and their careless spreading of infection and disregard of all warnings and admonitions as to the danger for themselves and for others.

Annali d'Igiene, Rome

January, 1920, **30**, No. 1

*Mutation of Bacilli. F. Sanfelice.—p. 1.
*Serologic Research on Meningococci and Gonococci. P. Calderola.—p. 7. Conc'n in No. 2, p. 108.
Amebic Dysentery. C. Vallardi.—p. 18. Conc'n in No. 2. p. 128.
*Research on Phagocytosis. J. Irala.—p. 28.
Lead in Drinking Waters. A. Scala.—p. 35.
Epidemic Encephalitis. G. Sampietro.—p. 45.

Mutations in Acid-Resisting Bacilli in Passages Through Animals.—Sanfelice's experimental research was with an acid-resisting bacillus cultivated from cases of glanders in man and horses. By passage through laboratory animals, he found that the bacilli adapted themselves to parasitic existence and could not be cultivated thereafter except at body temperature, while they finally assumed the shape and culture characteristics of tubercle bacilli. It is too early yet to learn whether these mutations are transient or will prove stable.

Serologic Research on Meningococci, Parameningococci and Gonococci.—Calderola concludes from his extensive experiments that agglutination can be relied on to distinguish the strain of meningococci responsible for an epidemic, and that the special antiserum for this strain is imperative in treatment, as antiserums for other strains are much less potent. A polyvalent antiserum should be used only until it is possible to obtain the specific antiserum for the strain causing the special epidemic.

Research on Phagocytosis.—Irala experimented with the staphylococcus, and reports that the ultraviolet rays promote the phagocytic action of the leukocytes at first, but with prolonged exposure phagocytosis is arrested, as the leukocytes are damaged. Calcium chlorid seems to promote phagocytosis if the bacteria are dead, but checks it if they are alive. Solutions of lactic acid in strengths of from 0.05 to 0.5 per cent. also check phagocytosis; this may be one of the factors in reducing the resisting powers during fatigue. Infection may develop from inoculation of animals with certain bacteria, harmless for the controls, if a little calcium chlorid is injected with the bacteria, as this inhibits phagocytosis of living bacteria. As the ultraviolet rays in small amounts promote phagocytosis, and at the same time modify bacteria, the latter thus fall an easier prey to the phagocytes.

Policlinico, Rome

July 12, 1920, **27**, No. 28

Determination of Blood Groups. G. Egidi.—p. 723.
Early Diagnosis of Tuberculosis. M. Borgogno.—p. 726.
Dysenteric Liver Abscess. A. Sala.—p. 729.
Iodin in Abortive Treatment of Paronychia. M. Gioseffi.—p. 730.

July 19, 1920, **27**, No. 29

*Subcutaneous Tests of Organ Extracts, etc. M. Ascoli and A. Fagiuoli.—p. 755.
*Antihemolysins in Urine. L. Condorelli.—p. 757.
Torsion of Greater Omentum. R. Cinaglia.—p. 758.
*Hemorrhagic Nephritis and Alcohol Intoxication. B. Masci.—p. 761.

July, 1920, **27**, Medical Section No. 7

Recent Progress in Malaria. T. Pontano.—p. 225. Conc'n.
Pernicious Malaria. C. L. Rusca.—p. 256.

Subcutaneous Injection of Organ Extracts, etc.—Ascoli and Fagiuoli report that injection of an organ extract under the epidermis induces more of a local reaction than a similar injection of water, but the effect seems to be the same with thyroid, ovary and other extracts. The effect differs however when one of these extracts is added to a solution of epinephrin. It reenforces the epinephrin so that one fifth elicits the same reaction as the full dose without the thyroid. Other organ extracts, with the exception of pituitary, inhibit instead of reenforcing the action of the epinephrin. They describe further research with various drugs, etc., showing that they can be grouped by the edematous reaction to subepidermic or subcutaneous injection, especially the alkaloids, pilocarpin, etc. This response seems to differ characteristically in asthma and certain other pathologic conditions.

Hemolysins in the Urine.—Condorelli's research has failed to confirm Amati's statements in regard to the ureohemolytic index, that is, the proportion of distilled water that has to be added to certain urines before hemolysis occurs.

Hemorrhagic Nephritis.—Masci reports, as he says, *horresco referens*, the cure of hemorrhagic nephritis, in a man of 42, rebellious for over four months to prolonged classic medical treatment. Then the man gave up hope and turned to liquor, drinking 2½ liters of white wine in three hours. The reaction was intense, with cyanosis, suffocation, cold sweats, profuse hematemesis, and anuria for twenty-four hours. The prostration next day was extreme, with hematuria, but in ten days the urine was normal, and there have been no symptoms since, the man resuming his military service at once.

Tumori, Rome

1919, **7**, No. 1

*Peritoneal Transmission of Mouse Cancer. G. Grosso.—p. 1.
*Deep Lipoma in the Thigh. A. Borzini.—p. 28.
Resection of Stomach for Cancer. G. Perez.—p. 43. Cont'n.

Transmission of Mouse Cancers.—Grosso's report of his extensive research on mouse cancers is accompanied with six large plates, showing the results of his attempts to induce metastasis by intravenous injection or other means. His aim was to induce production of metastasic tumors in other organs, without direct injury of these organs, after intraperitoneal inoculation of the mouse with the cancer cells. The positive results of his research may be summarized in the statements that it is possible to induce conditions so that scraps from a subcutaneous adenocarcinoma will develop in the peritoneum and may become very malignant and invade the pancreas, omentum, kidneys, liver, spleen, stomach, intestines or testicles. The tumor thus adapted to the peritoneum loses almost entirely its power of developing in the subcutaneous tissue, and only gradually reacquires it.

Deep Lipoma of the Thigh.—Borzini discusses treatment of primary tumors of the vessel sheaths in general, in connection with a personal case illustrated.

Revista Española de Obstet. y Ginecología, Madrid

March, 1920, **5**, No. 51

*Cancer of the Vulva. R. Becerro de Bengoa.—p. 97.
*Delivery of After-Coming Head. V. de Andrés Bueno.—p. 104.

Cancer of the Vulva.—Becerro's experience confirms the lack of benefit and even disastrous results from radiotherapy applied to vulvar cancer. Operative treatment has to be extremely extensive, following the lymphatics into the inguinal and femoral region, but it is not difficult nor dangerous, comparatively speaking. When the urethra is involved in the cancer, he treats this part of it with radium, as radiotherapy of the urethra has given good results, especially in the hands of Berven of Stockholm, while the incontinence that is left, after the lower end of the urethra has been resected, is more distressing, he says, than the natural progress of the lesion. The outcome has been very good in his three cases of cancer in the posterior region of the vulva; it extended into the vagina and was easily excised. The labia are the most frequent sites of the malignant disease, and the patients are comparatively young women. Epitheliomas in the posterior vulva are often secondary to malignant disease of the vagina, but tumors of this class are comparatively benign. There has been no recurrence in the four cases of the kind in which he operated six, five, three and two years ago. He describes the technic for vulvar operations, but without illustrations.

To Promote Delivery of After-Coming Head.—De Andrés gives six illustrations to show the technic he has applied in three cases, with gratifying results. The principle of the method is to exert traction on the lower jaw with the index and middle fingers introduced in the mouth, supporting the body of the child by the feet with the other hand. With this traction the occipitofrontal diameter is twisted around to correspond to the widest diameter of the pelvis. This allows the head to pass the superior strait, and this is accomplished still more readily if the head is slightly tilted. No traction on feet or shoulders or other manipulation is required with this maneuver, and if the pelvis and head are within normal size, extraction is easy and rapid. There is no need to change gloves, or sterilize the hands anew, as would be necessary if the hand had been applied to press on the abdominal wall, so that if there is excessive hemorrhage no time need be lost.

Semana Médica, Buenos Aires

May 6, 1920, **27**, No. 19

*Lethargic Encephalitis in a Syphilitic. E. Jeanselme.—p. 609.
*Tests for Tuberculosis. J. P. Garrahan.—p. 612.
Chemotherapy of Tuberculosis. C. Citrino.—p. 616.
Localization of Bleeding Point with Hemoptysis. J. F. Mieres.—p. 621.
The Physician of Tomorrow. M. Helman.—p. 621.
Sexual Chastity. L. Bard.—p. 622.
Treatment of Septicemias. A. Salvat y Navarro.—p. 625.
Differential Diagnosis of Apparent Death. J. Canseco.—p. 632.

May 27, 1920, **27**, No. 22

Tuberculin in Treatment of Ocular Lesions. S. Sánchez Gardel.—p. 707.
Anilids and Phenolanalids. J. A. Sánchez.—p. 712.
Case of Multiple Osteomas and Sarcomatous Epulis in Woman. A. Gutiérrez.—p. 715.
Injection of Mercury Cyanid. G. P. Goñalons.—p. 718.
Attenuated Criminal Responsibility. G. Bergmann.—p. 721.

Lethargic Encephalitis in a Syphilitic.—Jeanselme describes a case to show the close resemblance between the clinical picture of neurosyphilis and of lethargic encephalitis. In this case merely the fact that the patient was sleeping when Jeanselme made his rounds in the morning disclosed that the assumed cerebral syphilis was an attack of epidemic encephalitis in an old syphilitic.

Palpable Glands in Infants.—Hochsinger's sign of tuberculosis, that is, palpable glands in the side of the thorax, was found in all the infants examined by Garrahan, but only in eleven of the thirty-three was the tuberculin test positive. He regards it as instructive only when found on one side, and when inherited syphilis and the diatheses can be excluded. He reports negative results with Wildbolz' intradermal urine test for tuberculosis. (Mentioned in THE JOURNAL, Aug. 9, 1919, p. 456.)

Siglo Médico, Madrid

May 29, 1920, **67**, No. 3468

Herpes Zoster of Ear and Neck, with Peripheral Facial Paralysis. Mesonero Romanos.—p. 401.
*Serotherapy Accidents. F. Haro.—p. 405.

June 5, 1920, **67**, No. 3469.

*Hyperthyroidism and the Bloch Syndrome. C. Juarros.—p. 417.
The Clinic and the Laboratory. P. Luengo.—p. 418. Begun in No. 3468, p. 403.

Serotherapy Accidents.—On the basis of the fatal case recently reported by McCallum in which a child of 9 died after a preventive dose of diphtheria antitoxin, Haro warns that when there is anything to suggest vagotonia, a preliminary injection of epinephrin, pituitary, or other substance tending to depress the irritability of the vagi, should always precede the preventive or therapeutic dose of an antiserum or antitoxin.

The Bloch Syndrome.—Juarros describes a typical case of the clinical picture described by Bloch which affects mainly young widows and others whose sexual life has been suddenly transformed. He was impressed with the evidences of hyperthyroidism, and under treatment for this, normal conditions were promptly restored. Marañon has recently reported a case of the same aspect but with ovarian insufficiency predominating. This patient was unmarried and 39.

Beiträge zur klinischen Chirurgie, Tübingen

1920, **120**, No. 1

*Traumatic Segmental Vascular Spasm. H. Küttner and M. Baruch.—p. 1.
*Chronic Epididymitis. J. Dorn.—p. 25.
*Spastic Ileus. A. Sohn.—p. 45.
*Resection of Stomach for Cancer. W. Möller.—p. 65.
Traumatic Diaphragmatic Hernia. O. Orth.—p. 89.
Abdominal Wounds. H. Biesenberger.—p. 107.
Surgical Sequels of Influenza. F. Balhorn.—p. 141.
*Reconstruction of Esophagus. G. Axhausen.—p. 163.
*Correction of Deep Stenosis with Cold Cautery. M. Hofmann.—p. 196.
Polypous Sarcoma of Esophagus. M. Hofmann.—p. 201.
*Arteriovenous Anastomosis for Gangrene. H. Schloffer.—p. 215.
Patellar Tumors. Fr. Kaiser.—p. 239.

Traumatic Vascular Cramp.—Küttner and Baruch state that contraction of a segment of an artery after an injury usually calls for operation as the diagnosis is so uncertain, but it is transient and harmless otherwise. They encountered eight cases during the war, and warn against resecting an artery simply because it is not pulsating. The spasm may yield to a hot air douche or massage or hot water, or to atropin which paralyzes smooth muscle. The atropin might be injected into the artery above or be applied locally.

Epididymitis.—Dorn describes two acute, and eight chronic cases of epididymitis of nontuberculous origin. Staphylococci alone were found in the urine in two of the cases. The loss in weight and night sweats had suggested tuberculosis. The treatment need not be so radical as with tuberculosis.

Spastic Ileus.—Sohn reviews his experience with thirty cases of reflex or neurogenous spasm of the bowel confirmed by an operation. In one of his cases the spasm persisted for four weeks. There may be coincident paralysis of the segment above the contraction. Symptoms of hysteria or other nervous affection should be considered in the diagnosis, but an exploratory laparotomy is often advisable, if opium, atropin, morphin and lavage of the stomach fail to relieve.

Resection of Cancerous Stomach.—Möller reports survival for over five years of 10 per cent. of the 147 patients with gastric cancer given radical treatment at Lund since 1898. Omitting the cases in which death occurred from intercurrent disease after a free three year interval, the survival rate is 27.7 per cent. Of the total 501 operative cases the operative mortality was 21.1 per cent. The operative mortality after exploratory laparotomy alone was 16.8 per cent. in 125 cases, and after 220 gastro-enterostomies, 16.6 per cent.

Antethoracal Esophagus.—Axhausen reports four cases of irreparable stenosis of the esophagus from caustic action in which he tunneled a new esophagus under the skin of the chest. The technic and ultimate outcome are illustrated. The new esophagus answered its purpose perfectly in 59 per cent. of the cases, one man living in perfect health and comfort during the five years to date. The experiences are instructive in a number of points as Axhausen describes. The emaciation of the patient is no criterion as to the resisting power. One of his patients was a boy of 8 with a large thymus, and he succumbed to the effect of chloroform at the tenth sitting. Ether had been used in the preceding operations, and success seemed assumed.

Excision of Esophagus Stricture with Cold Cautery.—Hofmann introduced the de Forest cautery through the mouth and easily cut off the projecting shelf low in the esophagus.

Arteriovenous Anastomosis for Gangrene.—Schloffer declares that the numerous failures with Wieting's operation are due to its application to cases not suited for it. He describes the successful outcome for six years to date in a man of 30 with arteriosclerotic gangrene of both legs. His heart was sound, and there has been no tendency to edema at any time.

Deutsche medizinische Wochenschrift, Berlin

Feb. 19, 1920, **46**, No. 8

*Effect of Calcium on the Circulation. F. Kraus.—p. 201.
Pathology and Pathologic Anatomy of Gout. F. Munk.—p. 204.
Silver Arsphenamin and Sulphoxylate in the Treatment of General Paresis. F. Sioli.—p. 205.
*Treatment of Circumscribed Serous Meningitis. E. Schenk.—p. 209.
*Autovaccines in Treatment of Chronic Glanders. K. Zieler.—p. 209.
Temporary Blindness with Paralysis of Eye Muscles Following Carbon Monoxid Poisoning. G. Abelsdorff.—p. 210.
Treatment of Hay Fever. Heermann.—p. 211.
Laundering of Bed Linen as Cause of Itching. F. Bähr.—p. 211.
Suspensory with Double Girdle. L. Zippert.—p. 211.
Dermatologic Hints for General Practitioner. M. Joseph.—p. 212.

Action of Calcium on the Circulation.—Kraus reports research on guinea-pigs and rabbits which confirmed with the whole animal what others have determined with single organs in respect to the influence on the circulation of various combinations of electrolytes. He reproduces electrocardiograms under the influence of calcium by the vein, alone or with other drugs. Among the practical points suggested by his research is that "children's tetany" or spasmophilia is not restricted to children but probably occurs also in adults. Also that what we have been calling vagotonia is probably a disturbance in the normal combinations of electrolytes.

Successful Treatment of Circumscribed Serous Meningitis.—Schenk describes an operation on a man of 31 for an old shrapnel injury of the cervical spinal cord. To relieve the extreme pain in the left arm, which required increasing doses of morphin, laminectomy, with removal of the vertebral arches of CIII-CVI, was done under local anesthesia by Braun's technic. Owing to injection of a novocain-epinephrin solution into the soft parts, hemorrhage was slight and could be easily controlled by compression. The dura, which presented, was highly inflamed and without pulsation. On being opened by a longitudinal incision with scissors, 30 c.c. of cerebrospinal fluid escaped under high pressure, the removal of the pressure causing the cord to begin to pulsate at once. The cord was covered with deposits and with inflamed and gorged blood vessels and patches and strands of pseudomembranes. All the adhesions and membranes—which were found extremely tough—were divided and removed. Probing the intradural sac upward and downward revealed no further adhesions, and the dura was closed by fine continuous silk sutures. Deep catgut button sutures united the musculature. The operation was well borne, and the patient began to improve at once. The following day the painful spasms in the left arm had almost disappeared. Whereas before the operation the arm could scarcely be touched without causing great pain, it could now be moved, and massage was begun. Later the sensory and motor phenomena from irritation retrogressed quite perceptibly. However, the injury of the motor nerves proved to be irreparable, so that full use of the left arm could not be regained. But the right arm could now be given intensive treatment and was soon sufficiently restored to be used considerably for most purposes and to a limited extent for writing.

Autovaccines in Treatment of Chronic Glanders.—Zieler recalls that chronic glanders of the mucosa in man is usually regarded as an absolutely fatal disease. His case, previously published, is the first case in which a cure was effected by autogenous vaccines. There had been no relapse up to three months when the patient was last seen. Chronic glanders confined to the epidermis often heals without treatment. The danger from contagion seems to be very slight, which accounts for the difficulty in successful inoculation of guinea-pigs.

May 13, 1920, **46**, No. 20

Appendicitis in Relation to Female Genital Organs. R. Jolly.—p. 537.
*Silver Arsphenamin and Treatment of Syphilis. F. Bering.—p. 538.
Mushroom Poisoning. G. Treupel and E. Rehorn.—p. 540. Begun in No. 19, p. 509.
*Roentgen-Ray Treatment of Surgical Tuberculosis. K. Stromeyer.—p. 542. Begun in No. 19, p. 514.
*Chondromatosis of Joint Capsule. F. Lotsch.—p. 544.
Urethral Calculi. G. Neugebauer.—p. 546.
Securing of Continence with Artificial Anus. Kurtzahn.—p. 546.
Rhinologic Hints for General Practitioner. G. Finder.—p. 547.
Pathologic Anatomy of Dysentery. H. Beitzke.—p. 548.

June 10, 1920, **46**, No. 24

Exotic Diseases and Mistakes in Diagnosis. P. Mühlens.—p. 649.
Conc'n.

Friedmann Turtle Bacillus as Antigen. H. Selter.—p. 650.
Friedmann Treatment of Pulmonary Tuberculosis. A. Bacmeister.—p. 653.
Influenzal and Lethargic Encephalitis. C. Klieneberger.—p. 654.
Modification of Kjeldahl Test for Nitrogen. H. Citron.—p. 655.
Cascade Type of Hourglass Stomach. J. Schütze.—p. 656.
Dextrocardia with Supernumerary Vertebrae and Ribs. O. Schüssler.—p. 658.
Treatment of Neuralgia with Injection of Anesthetic under High Pressure. A. Poniemunski.—p. 658.
Treatment of Hemolytic Icterus with Collargol. A. Kirch.—p. 660.
Technic of Intravenous Arsphenamin Injections. E. Pilz.—p. 660.
Rhinolaryngologic Hints for General Practitioner. Finder.—p. 660.

Silver Arsphenamin and the Treatment of Syphilitics.—Bering is convinced that the toxic effects of silver arsphenamin are not increased by the simultaneous administration of mercury. He places silver arsphenamin on a par with arsphenamin, and thinks that the smaller dosage and the smaller arsenic content are to be favorably considered. Of 23 cases of secondary syphilis in which treatment with silver arsphenamin, exclusively, was carried out, 12 gave a negative Wassermann reaction for several months in succession, but in 11 cases the Wassermann reaction was still positive after six to ten weeks. Of 92 cases in which the combined treatment (mercury and silver arsphenamin) was given, 82 (94.6 per cent.) were negative for eleven months, while only 5 were still positive after three to four months.

Roentgen-Ray Treatment of Surgical Tuberculosis.—Stromeyer states that in young subjects roentgen-ray treatment offers excellent chances of success and usually gives much better results than surgical treatment. In older patients the prognosis is not quite so favorable, but this treatment should be tried, unless there are contraindications. In all cases in which operation is performed, unless a recurrence is out of the question, roentgen-ray treatment should still be given for prophylactic reasons.

Chondromatosis of the Articular Capsule.—In addition to fifteen cases gathered from the literature, Lotsch reports his own two cases of this rare joint disease, the first observations on which were published by Reichel in 1900. In Lotsch's first case a woman of 35 had had, for four years previous to her admission, a certain tenseness and slightly painful sensations in the left knee joint. A year after the first appearance of these symptoms, she could palpate a number of movable granules in the knee joint, which however caused her no inconvenience. A sudden fixation of the joint in a flexed position was the reason of her admission to the hospital. The roentgenogram showed numerous small shadows not sharply outlined. By means of arthrotomy a handful of small pieces of cartilage ranging in size from that of a grain of rice to that of a bean were removed, and the remaining small bits were washed out with sodium chlorid solution. The wound after primary suturing healed promptly. The evacuated bodies proved, on histologic examination, to be hyaline cartilage.

Münchener medizinische Wochenschrift, Munich

March 5, 1920, **67**, No. 10

*Sinking Velocity of Blood Corpuscles. F. Plaut.—p. 279.
Suggestions for Sensibility Tests. Sievers.—p. 282.
Roentgen-Ray Dosage and Effects in Twelve Different Internal Diseases. Klewitz.—p. 285.
Treatment of Syphilis with Arsphenamin Without Mercury. Nolten.—p. 287.
Kyphoscoliosis Following Tetanus. P. Spiess.—p. 288.
Dermatitis Caused by Imitation-Leather Sweatbands. Bettmann.—p. 291.
*Papulous Urticaria in Children (Strophulus). J. Schütz.—p. 291.
An Improved Type of Sterilizing Pipet. F. Mezger.—p. 292.
Value of Gymnastic Exercise for Convalescents. W. Smitt.—p. 292.
Diagnosis of Bronchopneumonia in Children. R. Drachter.—p. 293.

Characteristic Rate of Sedimentation of Blood Corpuscles in Citrated Blood in Nervous and Mental Disease.—Plaut has examined 220 cases of nervous and mental disease, including 48 cases of general paresis, 45 of dementia praecox, 34 of psychopathia or hysteria, and 24 of melancholia, in order to discover the relative rate of sedimentation of red corpuscles. He finds that in males the majority of cases of paralysis, syphilis and arteriosclerosis, on the one hand, differ from the majority of cases of psychopathia, melancholia, dementia praecox and epilepsy as regards the shorter period in which sedimentation of erythrocytes in citrated blood plasma takes place. It usually takes in paresis only one sixth of the time required in dementia praecox. Agglutination of the corpuscles is probably a factor in the acceleration of the sedimentation. As a rule, the differences in the degree of agglutination appear distinctly only under the influence of the citration and the concentration of the sodium chlorid solution. The phenomenon of acceleration of sedimentation is considered a pathologic sign, the definite significance of which has not as yet been determined. Sedimentation in women is more rapid than in men. Paresis in women shows a characteristic acceleration as compared with other diseases, but the rate here is less stable and is subject to physiologic influences, possibly menstruation among others. In pregnancy, sedimentation becomes even more rapid, which fact has diagnostic value.

Symptomatology and Etiology of Papulous Urticaria in Children.—Schütz has observed, during his long practice, that frequently strophulus and oxyuriasis occur together, or, if not simultaneously, that numerous strophulus patients have been treated at some other time, either later or earlier, for oxyuriasis. He has also noted that oxyuriasis and strophulus are most prevalent at the same age, and both show the same seasonal incidence. It was also found that therapy directed against oxyurids was also effective in relieving itching in strophulus patients. He points out that in early youth the hydrochloric acid content of the stomach is very slight, which furnishes a plausible explanation for the fact that both conditions are confined mainly to the young, since a strong hydrochloric acid solution may be expected to prevent an infection with oxyurids by mouth. Farinaceous food will usually favor the development of oxyurids. The low meat diet and the increased amount of farinaceous food during the war would explain the present greater prevalence of the two conditions.

Therapeutische Halbmonatshefte, Berlin

March 15, 1920, **34**, No. 6

*Treatment of Gangrene of Lung. W. Stepp.—p. 161.
*Treatment of Sprains. R. Wohlauer.—p. 164.
Internal Treatment of Gallstone Colic. E. Müller.—p. 169.
Gonorrheal Vulvovaginitis in Little Girls. H. Eyth.—p. 176.

Treatment of Gangrene of the Lung with Neo-Arsphenamin.—Stepp reviews the literature on gangrene of lung and finds that before operative treatment was introduced in 1901 the mortality under medical treatment was very high, possibly from 75 to 80 per cent. Under operative treatment the mortality has been reduced to 32.3 per cent. or, deducting the far advanced, hopeless cases, to 26.8 per cent. He has recently found neo-arsphenamin a very useful remedy in this disease. Acute cases, in which the gangrene was not preceded by pulmonary disease of long standing, seem to be best adapted to such treatment. The dosage varies from 0.3 to 0.6 gm. If the pus is not coughed up or if empyema is a complication, these conditions may possibly be regarded as contraindications to neo-arsphenamin treatment. More detailed knowledge of the indications and of the treatment in general will have to be gained by more extended experience. The gangrene followed pneumonia in one of the three cases reported; spirilla were found in the sputum in one case. In one man of 40 the sputum dropped from 225 c.c. to 0 in three days, the sixth day after the injection by the vein of 0.6 gm. neo-arsphenamin.

Treatment of Sprains.—Wohlauer analyzes a series of 300 sprains of ankle, knee, shoulder, spine, etc., treated during 1918 and 1919 in the surgical service at the Charité, Berlin. Since the advent of roentgenoscopy more accurate diagnosis and more enlightened treatment have become possible. The principal differences of opinion have of late centered around the question of immobilization of the joint. Wohlauer has usually found massage and hot air treatment and active and passive mobilization sufficient to combat the results of hemorrhage, laceration of the tissues and stiffness. He thinks that massage at the outset should always be performed by the physician himself, as he can best judge as to the kind, duration and intensity of the massage needed. Later on the massage may be intrusted to masseurs or sometimes to the more intelligent patients. Active hyperemia from heated air aids materially in bringing about rapid resorption of the extravasated

blood unless the amount is too large. The application of active and passive mobilization requires much tact and judgment. The comfort of the patient must always be carefully considered, but it cannot be expected that such treatment will be absolutely painless. Here also the attending physician should not intrust the work to the personnel; at least, not during the early stages. Mobilization at the outset should be mild and conservative, so as to awaken the confidence of the patient. No severe pain should be caused, and after every sitting the patient should have a certain feeling of comfort in the joint, as also following massage and the hot air treatment. In seventeen of the 300 cases the shoulder was left stiff, and in three cases each, the elbow and knee. Against this complication the same triad may be successfully used. In a few cases it may be necessary to break up the scars and adhesions under narcosis, in which event all tendency to bruskness should be avoided. The severe complications of sprains—extensive laceration of the ligaments, capsule incarceration and displacement of the meniscus—require operative exposure, excision of the incarcerated portions and suturing of lacerations. The separation of bony parts is treated like a fracture.

Wiener klinische Wochenschrift, Vienna

June 10, 1920, **33**, No. 24

A Possible Oligodynamic Action at a Distance. W. Spät.—p. 509.
*Blocking of the Splanchnic Nerves. E. Paul.—p. 511.
*Chronic Stenosis of Larynx and Trachea. G. Hofer.—p. 515. Conc'n. Social Hygiene. L. Teleky.—p. 519; Comment, R. Grassberger.—p. 520.

Blocking of the Splanchnic Nerves.—Paul states that by blocking the splanchnic nerves by Kappis' technic intra-abdominal operations can be carried out without pain. The secondary effects are paleness of the face and marked acceleration of the pulse. Often nausea lasted some time, and occasionally the short duration of the anesthesia hampered the operator. It is possible, through excessive novocain resorption, for severe collapse to occur. In the case of debilitated persons, the operator should be especially careful to give as little of the anesthetic as possible and to use as weak a solution as will be efficacious. Paul has never observed any permanent injury from blocking the splanchnic nerves, but the conditions are such that great caution should be taken. In his twenty-five cases there was one severe collapse.

Operative Treatment of Chronic Stenosis of Larynx and Trachea.—Hofer cites several case reports and reaches the conclusion that chronic stenoses of the larynx and the trachea, especially those of traumatic origin, are, as a general rule, amenable to operative treatment. Extensive damage to the cartilaginous structure of the trachea may set limits to operative intervention. Where the limits lie must be learned by experience.

Zentralblatt für Chirurgie, Leipzig

June 5, 1920, **47**, No. 23

Brace for Treatment of Fractured Clavicle. S. Widerõe.—p. 562.
Operative Treatment of Carcinoma of the Lip. W. Peters.—p. 564.
*Parathyroid Implants in Postoperative Tetany. H. Jaeger.—p. 565.
*Effect of Ring of Local Anesthesia on Inflammatory Processes. E. Wehner.—p. 569.
After-Treatment in Suprapubic Prostatectomy. H. Schaedel.—p. 571.

Transplantation of Parathyroid Glands in Postoperative Tetany.—Jaeger reports two cases of postoperative tetany treated by transplantation of parathyroid glands from cadavers of new-born infants who had just died from asphyxia. In the first case transient relief was afforded by the operation, but the attacks returned after five days and death resulted the fifteenth day. In the second case the patient showed marked improvement the day following the operation, and for several days thereafter she felt better, but the symptoms reappeared soon. Better results were obtained with calcium lactate. He adds that it might be advisable when haste is necessary to combine parathyroid transplantation with calcium lactate, pushing the dose to 30 gm. a day by mouth and vein. He has realized very satisfactory results, in both postoperative and genuine tetany, with calcium lactate, a teaspoonful daily, fasting, the first week, then two, and then three teaspoonfuls the third week, and then reducing in the same way.

Ring of Local Anesthesia to Check Inflammatory Processes.—Wehner sought by anesthetization of the surrounding healthy skin to prevent further progress of the inflammation in erythematous erysipelas. For this purpose he used a novocain-epinephrin solution (1 per cent. novocain; 0.0004 per cent. epinephrin). The epinephrin was added with the view of prolonging the anesthesia. By this intracutaneous injection of the anesthetic solution he produced a continuous wall of wheals at the junction of the healthy and the inflamed skin. For control purposes a gap was left untreated in the wall. While he does not regard his experience as extensive enough to be conclusive, he nevertheless was convinced that in acute, serous inflammation of the skin, such as occurs in erythematous erysipelas, the inflammatory process may be checked by walling it in with a single application of local anesthesia. He cites some recent confirmatory evidence with war wounds, and Spiess' work in this line in 1906.

Zentralblatt für Gynäkologie, Leipzig

May 22, 1920, **44**, No. 21

Biologic Consideration of the Dosage in Combined Roentgen and Radium Treatment. L. Seitz and H. Wintz.—p. 529.
Spontaneous Rupture of Umbilical Vein. K. Kautsky.—p. 537.
*Paralysis of Oculomotor Nerve in Pregnancy. F. Bierende.—p. 539.

Paralysis of the Oculomotor Nerve in Pregnancy.—Bierende states that motor disturbances in otherwise normal eyes are among the rarer complications of pregnancy. He reports a case in a secundipara of 34 admitted to the hospital in a comatose condition due to eclampsia. The left eyelid drooped to the extent that the left eye was entirely closed, while the right eye was normal. There was complete paralysis of the left levator palpebrae superioris. The other eye muscles were not affected. A similar left ptosis had occurred during the first pregnancy eight years previously. At that time there was no eclampsia. The paralysis had gradually retrogressed without treatment, and in three months after childbirth had cleared up entirely. Vision was not impaired during the state of paralysis. Also in the second pregnancy the ptosis had abated without treatment during the first few weeks following confinement. During both pregnancies severe headaches and vomiting had occurred throughout. Bierende regards both cases as due to a pregnancy toxicosis, of which the severe headaches and the vomiting were expressions. There were no signs of hysteria and there was no tendency to epilepsy.

June 19, 1920, **44**, No. 25

*Placentation in Extra-Uterine Pregnancies. F. Lichtenstein.—p. 657.
Lethargic Encephalitis. W. Benthin.—p. 673.
Pregnancy in Relation to Influenza. E. Martin.—p. 678.

Importance of Site of Placenta in Extra-Uterine Pregnancy.—Lichtenstein reports two cases of his own and analyzes the statistics of 223 extra-uterine pregnancies with a view to showing that in tubal and ovarian pregnancies the site of the placenta is of paramount significance. To designate different segments of the fallopian tube he uses the terms "acrotropic," "basiotropic," "centrotropic" and "equatoriotropic." He considers the body of the tube as the physiologic and anatomic base, although it lies higher in the human body than the tip, just as the fundus or base of the uterus and the base of the heart are higher than the cervix and apex, respectively. He finds that if the placenta is attached to the base, or the basiotropic segment, of the tube, the chances that the fetus will be carried to term, or at least past the fifth month, are vastly greater than if the placenta is attached to the apical portion, the acrotropic segment. He expresses the hope that in the future in all case reports of extra-uterine pregnancy the exact site of the placenta may be stated when possible.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 22, 1920, **1**, No. 21

*Placenta Praevia. K. de Snoo.—p. 1800.
Fibrillation and Flutter of the Heart. S. de Boer.—p. 1818.
Maclean's Method for Determining the Sugar Content of the Blood. R. Bahlmann.—p. 1829.

To Reduce the Mortality from Placenta Praevia.—De Snoo warns that with central placenta praevia there is often a kind of spur formation closing the entrance into the cervix from

above and thus impeding delivery. The cervix may be fully dilated below but this spur of mucosa and muscle has to be cut away before the fetus can be expelled. He recalls that the muscles in the cervix do not share in labor contractions; they are passive, and hence if there is hemorrhage from some erosion in the cervix, ergot and pituitary extract have no action on the muscles in this region and the bleeding keeps up unmodified. Even with cesarean section, bleeding at this point is not arrested by evacuation of the uterus above. He cuts away the spur impeding delivery, and runs a suture thread around the erosion or bleeding vessel, drawing up the thread and tying it. This is easily done when the erosion is on the posterior wall of the cervix, as has been the rule in his cases of the kind among his 137 cases of placenta praevia in the last five years.

He analyzes this material from various standpoints, calling attention in particular to the danger of infection of an erosion in the cervix. This is especially liable to occur when the external os is gaping, even in women who have not been internally examined. This is a further and extremely important argument against cesarean section: the women are already infected from some erosion in the cervix. The interval between the first signs of the bleeding erosion and the termination of the childbirth is a further important factor in the outcome. There was no morbidity among the 14 women who were delivered the same day that the hemorrhage appeared, that is, before any possible infection of the erosion had had a chance to spread. Only 2 had a febrile puerperium among the 42 delivered within three days, while 19 had grave purperal fever—fatal in 6—among the 86 not delivered till after a longer interval.

The children were delivered in good condition in 54.5 per cent. Over 93 per cent. were living of the children with spontaneous delivery, but only 59.1 per cent. after metreurysis and 47.6 per cent. after Braxton Hicks version. If metreurysis can follow at once after the first hemorrhage, before there has been a chance for infection to occur and to spread, the outcome for the children will be incomparably better. In conclusion, he warns impressively against internal examination when there is reason to suspect placenta praevia. He does not approve of boring through the placenta; it is better to detach the placenta, especially from the spur. If this starts hemorrhage, it can be arrested with the metreurynter. The placenta is more readily detached immediately after the metreurynter has been expelled than by waiting till after the child has been born, as the lower segment of the uterus then is relaxed. It takes very little time, so that the whole placenta can thus be separated, the membranes ruptured and the child extracted before it feels the lack of oxygen. If hemorrhage continues, he draws up the bleeding vessel with a suture thread or sutures any laceration or tampons.

Finska Läkaresällskapets Handlingar, Helsingfors

May-June, 1920, **62**, No. 5-6

*Influences Affecting Muscular Energy. D. Rancken.—p. 281.
*Bone Transplantation. R. Faltin.—p. 299.
*Diphtheria Infection of Wounds. Dora v. Wendt and G. Wallgren.—p. 307
Present Status of Knowledge of Puberty Process. A. de la Chapelle.—p. 316.

Influences Affecting Muscular Energy.—Rancken has been applying an instrument to measure and record the muscular energy. He reproduces a number of the curves obtained with this hand dynamograph in various subjects under varying conditions, and declares that the findings have raised a host of new questions of great theoretical interest and practical importance in regard to the response of the muscles to various influences.

Bone Transplantation—The fibula of a boy of 13 was resected for osteochondroma, and the gap of 8.5 cm. closed with an insert taken from the tibia of the other leg. Roentgen-ray examination six years later shows complete substitution of the transplant with solid new bone tissue. In thirty other cases of bone transplantation (war wounds) the primary results grew constantly better with wider experience. Even when there is suppuration, all hope need not be given up of the success of the transplantation.

Wound Diphtheria.—In one of the two cases reported, there were symptoms of severe toxic action from the wound diphtheria. Under neutral solution of chlorinated soda the wounds cleared up and promptly healed.

Svenska Läkaresällskapets Handlingar, Stockholm

June 30, 1920, **46**, No. 2

*Pathology of Icterohemorrhagic Spirochetosis. L. Pick.—p. 41.
Social-Anthropologic Research in Sweden. H. Lundborg.—p. 65.

Icterohemorrhagic Spirochetosis.—Pick discusses the etiology and the pathologic anatomy of Weil's disease and recent literature on the subject. Recent experiences have shown that this disease may lay the foundation for cirrhosis of the liver. He states that it has been impossible to detect with the microscope the spirochetes in the patient's blood, and attempts to inoculate guinea-pigs with organs from patients have also failed. Microscopic examination of the kidney tubuli is more likely to be successful, but even this may fail. This renders the more remarkable the swarming of the spirochetes in the blood, urine and organs of guinea-pigs inoculated intraperitoneally with 2 or 3 c.c. of defibrinated venous blood from the patient. The animal by the fourth to sixth day presents the clinical picture of the disease, and the pathologic findings are nearly identical with those in man. The necropsy differential diagnosis in human cases is facilitated by the microscopic destruction of erythrocytes in the meshes of the reticulum in the spleen and elsewhere in what he calls the "reticulo-endothelial apparatus of metabolism." This erythrorrhexis is extremely characteristic, and explains the anemia.

Ugeskrift for Læger, Copenhagen

July 8, 1920, **82**, No. 28

*Brain Tumors. A. V. Neel.—p. 867.
*Metabolism and Internal Secretion. N. R. Christoffersen.—p. 879. Begun in No. 27, p. 838.
Fatal Poisonings with Poppy Juice. I. Osiier.—p. 885.
Antipyrin Eruption. H. Boas.—p. 886.

July 15, 1920, **82**, No. 29

Lethargic Encephalitis. V. Scheel and others.—pp. 913; 924; 928; 929.

Brain Tumors.—Neel's five cases of brain tumors sustain his assertion that a previously healthy person does not suddenly develop "neurasthenia" or "hysteria" without some cause. One woman was long treated for "nervousness" until the abnormal aspect of the white corpuscles was noted. Her vague symptoms proved to be the premonitory signs of extensive metastasis in the bones from a mammary cancer which had been removed several years before. In two of his cases muscular spasms had preceded by almost six years other symptoms of the brain tumor. In conclusion he emphasizes the striking remissions liable in the clinical course of a brain tumor, and the importance of the state of mind. The roentgen rays may act by suggestion alone in some cases, but the benefit even from this may be far-reaching.

The Metabolism and the Internal Secretions.—Christoffersen tabulates the metabolic findings in three cases of extreme thyroid deficiency. They show that the elimination of sodium chlorid proceeds normally with thyroid deficiency, and even plus pituitary deficiency, if the suprarenals are intact. The elimination can be augmented by pituitary treatment but not by thyroid treatment. These and other data cited suggest that the suprarenals first, and next the pituitary, control the elimination of sodium chlorid (aside from heart and kidney disease). One of the patients studied was a dwarf, 45 years old. He had been of normal size at birth, but had at once developed gonococcus ophthalmia. The findings suggest deficient functioning of several of the endocrine glands, interfering with ossification and growth in general. The hip joints showed anomalies like those of the Calvé-Perthes disease, but the same findings were observed in other joints. Thyroid treatment was pushed, and the man of 45 showed marked improvement and grew 5 cm. taller, the roentgen rays demonstrating improvement in the structure and shape of the bones, hair and teeth, but the treatment had to be suspended on account of the great loss in weight. Biedl and Falta have also reported benefit from thyroid treatment in myxedema of twenty-five years' standing.